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COUNTRY MARKET SURVEY

REPUBLIC OF KOREA

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U.S. DEPARTMENT OF COMMERCE

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Much of the information for this survey was developed during the author's recent trip to the key commercial and industrial areas in Korea, and in plant interviews with local businessmen and officials. He also drew upon reports prepared by the American Embassy in Seoul and on articles in official and unofficial Korean publications.

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Foreword

The Republic of Korea merits the attention of the U.S. exporter. All too often the American supplier has confined himself to selling under the U.S. aid program, thinking that the opportunities for doing business on a commercial basis were few. This mode of thinking no longer fits the Korean situation.

Total Korean imports, which averaged less than \$500 million annually in the early part of the 1960's, tripled to reach nearly \$1.5 billion in 1968. Shipments under the U.S. aid program now comprise only 10% of Korea's total imports and less than a third of Korea's imports from the United States. Economic progress in Korea has been such that plans are being laid for the termination of U.S. economic assistance to that country.

American business must accordingly be even more prepared to participate on a commercial basis in this expanding economy, one which has become the third largest consumer of U.S. exports in the Far East. U.S. suppliers who have marketed their products in Korea have found it well worth the effort. For example, American firms which displayed their products at the Department of Commerce's Industrial Machinery Exhibition, held in Seoul in May 1969, established a new record for off-the-floor sales under the Department's worldwide commercial exhibits program.

This survey describes the Korean economy and the course of its future development, provides information on the markets for specific products, characterizes distribution channels, and explains Korea's import regulations. It is thus designed to help U.S. exporters formulate a marketing strategy most responsive to local competitive conditions and practices.

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Glossary of Organizational and Other Abbreviations Commonly Used in Korea

- AFDC**—Agriculture and Fishery Development Corporation
BOK—Bank of Korea, Korea's central bank
EPB—Economic Planning Board, Government agency responsible for formulating economic development plans and approving foreign investment
FIC—Fine Instruments Center, scientific instrument calibration and maintenance facility
FKI—Federation of Korean Industries, business association of Korea's largest firms
KAL—Korean Air Lines, Korea's international airline
KCCI—Korea Chamber of Commerce and Industry, national federation of chambers of commerce
KDB—Korean Development Bank, industrial development bank. Until September 1, 1969, the Korean Reconstruction Bank (KRB)
KDFC—Korea Development Finance Corporation, private development bank supported by World Bank and AID
KECO—Korea Electric Company, Government-run electric utility company
KFX—Korean Foreign Exchange, foreign exchange held by the Korean Government
KIST—Korea Institute of Science and Technology, autonomous Government-chartered industrial research institute
KNR—Korean National Railroad
KOCO—Korea Oil Corporation, a joint venture between the Korean Government and Gulf Oil, which operates the oil refinery at Ulsan.
KOTRA—Korea Trade Promotion Corporation, Government export promotion agency
KPC—Korea Productivity Center, center for research in marketing and management
KRB—Korean Reconstruction Bank, industrial development bank. Effective September 1, 1969, name changed to Korean Development Bank (KDB)
KTa—Korean Traders Association
KXB—Korea Exchange Bank, bank responsible for overseeing Korea's foreign exchange transactions
MAF—Ministry of Agriculture and Forestry
MCI—Ministry of Commerce and Industry
MIB—Medium Industry Bank, industrial development bank
MOC—Ministry of Construction or Ministry of Communications
MOF—Ministry of Finance
MOST—Ministry of Science and Technology
NACF—National Agricultural Cooperatives Federation
OSROK—Office of Supply, Republic of Korea, Government procurement agency
PAC—Property and Claims Settlement, funds extended to Korea by Japan under Japan-Korea Normalization Treaty of 1965
ROK—Republic of Korea



The Economy, Development Trends, and Market Sectors

OVERVIEW OF THE ECONOMY

The partition of the Korean peninsula into the two parts after World War II left the Republic of Korea with few natural endowments. The hydroelectric resources, mineral deposits, and most of Korean industry were concentrated in the North. The Korean War further added to the problems of readjustment and construction faced by the Republic. It was not until the early 1960's that Korea emerged from a period of reconstruction and consolidation in a condition that made possible the addition of a viable manufacturing sector to a predominantly agrarian economy.

Stability of political leadership, a highly literate population, in which the literacy rate has reached some 90%, coupled with heavy infusions of foreign aid, particularly from the United States, helped to achieve a dramatic transformation of the economy. From an average annual real growth rate of 5% for the period 1957–61, gross national product (GNP) increased at an average annual real rate of 8.3% during the First Five-Year Development Plan, 1962–66. A real increment of 8.9% was registered in 1967 despite drought conditions in agriculture, and the growth rate for 1968 was 13.3%, with GNP being valued at \$5.8 billion. An even larger real gain is anticipated for 1969.

Very large increases in manufacturing output have been mainly responsible for these growth rates, with the result that the contribution of mining and manufacturing to GNP measured in constant prices has shifted from 13.5% in 1958 and 17.8% in 1963 to 24.9% in 1968. Conversely, the share of agriculture, forestry, and fisheries in GNP declined from 44.6% in 1958 to 29% in 1968. In addition, those sectors providing services ancillary to manufacturing—notably electricity, gas, transportation, construction, and communications—have experienced a rapid rate of growth as reflected in the rise in their share of GNP from 5.5% in 1958 to 11.1% in 1968. Notwithstanding the inflationary pressures of rapid growth, Korea has met with a large measure of success since 1965 in keeping price increases within manageable proportions, and annual increases in wholesale and consumer prices have fluctuated around 6% and 10% respectively, the stated goals of the Government's financial stabilization program.

Underlying Korea's economic progress in recent years has been an increase in gross domestic fixed capital formation as a proportion of GNP in constant prices. From 10.5% of GNP in 1958, gross fixed invest-



Panoramic view of Seoul, capital city of the Republic of Korea, nestled against mountains in background. Many large, modern buildings have been erected since the end of the Korean War.

ment rose to 15.3% in 1963 and 27.1% in 1968. Of equal significance is that the financing for such investment has increasingly come from domestic sources. Foreign financing (predominantly U.S. economic assistance which since 1953 has totaled nearly \$4 billion) has been a declining, although still highly important, factor in gross capital formation, dropping from 83%, or 37.72 billion won, of gross investment in 1962 to 45%, or 173.11 billion won, in 1968.¹ Foreign borrowings exceeded transfers of aid funds to Korea for the first time in 1968, thus underlining the lessened dependence of Korea on grant aid.

¹ The current exchange rate for the won fluctuates around 304 won to the U.S. \$1. For details on exchange rate movement see the appendix.

Contributing both to the country's industrialization and rapid growth, and to Korea's growing ability to finance its own investment program, has been the remarkable expansion of exports from a total of \$32.8 million in 1960 to \$445 million in 1968. Despite this performance, Korea continues to face a serious imbalance in its merchandise trade account, for the country is heavily dependent on imports to: Make up deficiencies in domestic agricultural production; provide such raw materials for industry as raw cotton, logs and pulp, petroleum, and iron and steel; and obtain capital equipment for industrial expansion.

The economy's dependence on imports is seen in the fact that in 1967 and 1968 imports of goods and services accounted for 27.5% and 33.9% respectively of

GNP. Merchandise imports have more than tripled since 1964, from \$404.4 million to \$1,468.2 million in 1968. The deficit on current account has been made up by inflows of economic assistance, commercial loans, foreign investment, and invisible earnings related to the Viet-Nam War. Foreign exchange reserves as of the end of December 1968 stood at \$409.8 million.

Through two successive Five-Year Development Plans (the Second Five-Year Plan ends in 1971), the Government has played a large role in Korea's development effort. In addition to the allocation of funds for such Government-owned public services as water supply, transportation, communications, and electricity, corporations with substantial Government interest have made significant contributions to the development of the fertilizer and chemical industry, petroleum refining, and mining. Private enterprise, aided by loans of Government funds, has nevertheless been the chief engine of progress, accounting for some three-quarters of fixed capital formation.

Based upon performance during the first 2 years of the Second Five-Year Plan, covering the period 1967-71, the objectives of the Plan have been revised upwards. From an estimated 1968 GNP of \$5.8 billion, the economy was projected to grow at a real annual rate of 15% in 1969, and 11% in 1970 and 1971. Output in manufacturing, including mining, plus construction, transportation, electricity, and communications are expected to sustain these high rates of growth, while the agriculture, forestry, and fisheries sector is expected to increase at an annual average of 5%. During the remainder of the Plan period, the Government proposes to concentrate its investment in expanding electric power facilities, constructing a modern highway network, building up a petrochemical complex, strengthening the domestic machinery industry, and undertaking projects aimed at raising the income of those employed in agriculture. The Government set an ambitious export target of \$1 billion for 1970. To supply the raw materials needed for export and domestic industry and to provide the capital equipment necessary for industrial modernization and expansion, imports are projected to reach \$2.1 billion in 1970.

It is the present and expected growth in all sectors of the economy, together with its heavy import needs, that makes Korea such an attractive market for U.S. exports. The major goals set out in Korea's Third Five-Year Plan (1970-76) bear testimony to these favorable prospects. The Plan calls for a 9% average annual growth rate, resulting in a more than doubling of current GNP to \$12.5 billion in 1976. Merchandise exports are to rise by some 22.5% a year to reach \$3.6

billion in 1976. The composition of Korea's exports will reflect the Government's emphasis on developing export industries. Machinery exports are to increase from \$24 million in 1968 to \$700 million, and exports of chemical products are to rise from \$5 million in 1968 to \$500 million in 1976. Imports of goods and services are expected to reach \$3.6 billion by 1976, growing at an average annual rate of 10%. To achieve these objectives, domestic savings are to increase from 12.9% of GNP in 1968 to 22.1% in 1976.

The remaining sections of this chapter discuss separately the chief sectors of the economy and, in general terms, indicate the outlook for sales of U.S. products to the markets these sectors represent. Brief résumés of the most favorable markets for specific products are given in Chapter III.

Agriculture

Agricultural production in terms of constant prices has increased steadily, achieving an average real growth rate of 6.3% during the period 1961-66. However, drought conditions in the southern provinces caused a 6.1% drop in output in 1967, and only negligible increases in production were registered in 1968. Rice is the principal crop in Korea, and paddy fields make up over half the cultivated area. Barley, other grains, soybeans, potatoes, vegetables, and fruits are the other major crops in Korea.

The extent of agricultural employment (and thus of total Korean employment) varies with the seasonal tempo of farming activities. At the height of the growing season, agriculture and forestry in 1968 accounted for 61% of the total employed labor force of 10.8 million. At the end of December, agricultural employment was reduced to 2.8 million, or 36% of the employed labor force. Farm households numbered 2.5 million in 1966, or a little less than half of all Korean households. Despite the large, although declining, role played by agriculture in the Korean economy (agriculture and forestry accounted for 27.4% of GNP in 1968), this sector offers only limited opportunities for sales of U.S. products. The restricted size of the market is reflected in the fact that farm holdings are small with an average area of 2.2 acres per household, resulting in low average household income. Mechanization has been limited with 1967 ownership of power equipment as follows: tillers, 3,819; threshing machines, 25,474; and sprayers, 12,768.

Through such means as land reclamation, improvement and extension of irrigation facilities, especially ground water resources, introduction of better seed varieties, increased application of fertilizers and pesti-



Korean farmers try to take advantage of all available arable land. Here, terraced rice paddies stretch back into a cranny between several hills.

cides, and the promotion of mechanization, it is hoped that further increases in agricultural output will occur. An important part of this effort is the Government's All Weather Farming Program which aims to raise the proportion of fully irrigated land from 60% to 85% of the country's total cultivable area by 1976. In support of this plan, the World Bank has extended to Korea a 30-year loan of \$45 million for financing the development of irrigation agriculture on 91,500 acres in south-western Korea.

Fertilizers and pesticides are distributed to the farmer almost exclusively through the National Agricultural Cooperative Federation (NACF), and this organization also handles some sales of agricultural machinery. With the opening of three new urea fertilizer plants in 1967, Korea is relatively self-sufficient in nitrogenous fertilizers, but Korean needs for phosphatic and potassic fertilizers will continue to be largely met from imports. Domestic production is insufficient to meet all the demand for pesticides and fungicides, and imports of these chemicals, together with the chemicals necessary for their manufacture, will continue to enter the Korean market in substantial quantities. In 1968, Korea imported \$1,373,000 of pesticides and fungi-

cides, of which 22% came from the United States.

Korea is drawing on Japanese finance, made available through the Property and Claims Settlement, for implementation of several agricultural projects, notably for the mechanization program and the construction of irrigation facilities. Indeed, imports of tractors, cultivators, harvesters and threshers, and cleaning and grading machines for agricultural produce totaled \$2,354,000 in 1968, of which 91% was supplied by Japan. Korea produces a small number of power-operated tillers, threshing machines, sprayers, and water pumps.

Increases in urban consumer income have generated a rising demand for meat and dairy products. As a consequence, increased attention has been given to expanding dairy farming and livestock and poultry raising. In the period 1961-66, the number of large-scale chicken-raising establishments, each producing 500 chickens or more, rose from 736 to 1,276. The number of milk cows has doubled since 1964 to 10,400 head. Several U.S. companies have entered into joint ventures with Korean firms in the livestock field, including the production of animal feed. Imports of dairy machinery and poultry-keeping equipment have risen from



Mechanization of agriculture should help Korea boost farm production.

\$43,000 in 1967 to \$1,140,000 in 1968, and these recent developments promise a somewhat brighter future for U.S. exports of such equipment.

FISHERIES

Fishing activities support a population of 1.5 million (with a working force of under 300,000) and contributed nearly 2% to the GNP in 1968. Extensive Government support to this industry has helped to bring the domestic fish catch from 444,000 metric tons in 1963 to 688,000 metric tons in 1968. Buoyed by infusions of funds from the Property and Claims Settlement with Japan, mechanization of the fishing fleet has expanded from 6,463 vessels totaling 86,514 gross tons in 1964 to 8,426 vessels totaling 130,455 gross tons in 1966. Non-power driven vessels in the same period rose from 42,253 (80,909 gross tons) to 44,868 (115,467 gross tons). A rapid expansion of the deep-sea fishing fleet from 180 vessels in 1967 to 333 in 1971 is planned. Domestic shipyards, together with deliveries from Japan, are scheduled to meet the planned increases in both the deep-sea and coastal waters fleets. Fish nets, as well as marine diesel engines, are produced locally. Thus opportunities for sales of U.S. products to this sector are very restricted. Much better opportunities arise from Korean plans to expand fish processing plants. These are discussed in the food and beverage industry section.

MINING

Korea has a wide variety of mineral resources; more than 200 different minerals and ores have been discov-

ered. The chief mineral resources exploited in terms of value of output include anthracite coal, iron ore, lead and zinc, tungsten, graphite, salt, gold and silver, fluorite, copper, limestone, talc, manganese, and kaolin. Mining production accounted for 1.5% of GNP in 1968, and employment in this industry totaled 111,000.

Foreign aid has contributed significantly to Korea's efforts to rehabilitate and modernize the mining industry following neglect and destruction incurred during World War II and the Korean conflict. Activities of the U.S. Agency for International Development (AID), alone, have involved over \$11 million for mine examinations, geological reconnaissance, drilling programs, an aerial survey, feasibility studies, and design and engineering technical services.

Coal mining is Korea's major extractive industry. Total recoverable coal reserves were established to be over 509 million tons² in 1966, consisting mostly of meta-anthracite. Neither bituminous coal nor coking coal is found in Korea and only small deposits of lignite exist. Bituminous and coking coal have been imported from Japan and Australia at an annual rate of about \$2 million over the past several years.

Until 1959, the Korea Coal Corporation, composed of six Government-owned mines, produced over half of the coal mined in Korea. In recent years the output of privately-owned mines has surpassed that of the Korea Coal Corporation, accounting for 62% of total coal production in 1967. Annual production of coal more than doubled from 1960 to 1967 with a record total of over 12.4 million tons produced in 1967.

Anthracite coal is used mainly for heating in Korea, and by 1974 some 70% of coal production will be used in households, primarily in the form of briquettes. Industrial uses are expected to register only a gradual rise due to increased substitution of petroleum and electric energy for coal. The dieselization of the railroad system reflects the trend to newer fuel sources. Coal production will continue to increase in volume, and a number of development programs in both Government-owned and private mines are underway. However, the growing use of petroleum makes extensive capital investment in coal mining unlikely, so that prospects for sales of U.S. coal mining equipment are limited.

Known reserves of iron ore with an iron content of more than 25% are estimated at 64 million tons. However, reserves of high-grade ore (iron content of more than 40%) are in the order of 15 million tons. The

² Unless otherwise indicated, all tonnage figures cited in this report are in terms of metric tons.

Government-owned Yangyang mine, the most modernly equipped iron mining facility in Korea, accounts for 45% of the country's iron ore production. Taiheung Corporation's privately-owned Mulgum mine accounts for 25% of Korea's total output. Both companies operate iron ore dressing plants, each capable of producing 300,000 tons of finished product annually. Two major deposits of iron ore were discovered in 1966 at Hongchon and Chaun, and their reserves were estimated at 44 million tons of magnetite ore with a 24% grade. Exploration and development work is continuing at these sites; a one-million ton, iron-ore dressing plant is being planned for Hongchon.

The Government has placed great emphasis on the development of an iron and steel industry in the Second Five-Year Plan, and the need for domestically mined iron ore is expected to grow considerably. Production of 45–60% iron ore increased from 470,700 tons in 1962 to 698,206 tons in 1967. The Plan calls for an output of 1.6 million tons in 1971.

Korea ranks high in the world's production of tungsten, amorphous graphite, bismuth, talc, and fluor spar. The Sangdong tungsten mine, operated by the Government-owned Korea Tungsten Mining Corporation, is the free world's largest. This mine accounts for some 80% of the country's tungsten production, which has stabilized around a 4,000-ton-a-year level. Bismuth is extracted in conjunction with tungsten at the Sangdong mine, and of Korea's total production of refined bismuth of 112 tons, nearly all comes from this source.

The production of lead and zinc has increased markedly since 1959, with many mines being developed, and concentration plants established. In prior years all production of lead and zinc was exported, but with the recent growth in industry and manufacturing, appreciable percentages are being consumed by domestic industry.

The privately held Young Poong Mining Company is Korea's largest producer of lead and zinc. The 1971 Plan target is 30,000 tons of lead and 40,000 tons of zinc, which compares with the 1967 output of 17,607 and 27,428 respectively.

Korea's growing copper needs for the manufacture of power transmission equipment and electrical appliances has fostered plans for increased copper production. The Second Five-Year Plan's production target for 1971 is 30,000 tons. Completion of milling facilities at the Kunbuk mine (the largest producer in 1967) and Ilkwang are scheduled to meet part of this goal.

The exploration and development of non-metallic minerals have been somewhat neglected for many

years, but now with Government programs stimulating this sector, good increases in production are evident. The total output of glass and ceramic raw materials—kaolin, pyrophyllite, feldspar, and silica sand and stone—increased from 63,712 tons in 1959 to 458,846 tons in 1967. With the exception of silica sand for glass, these minerals are exported, and will continue to be until the local ceramic industry is further developed.

MANUFACTURING

Expansion in manufacturing has been the most important causal factor in Korea's rapid economic growth. From the inauguration of the First Five-Year Plan in 1962, the contribution of manufacturing to GNP rose from 15% to 23% in 1968. Employment in manufacturing industries increased more than 50%, to 1.3 million, from 1963 to 1968. Korea's index of industrial production (1965=100) showed a 154% increase, from 77.6 in 1963 to 196.8 in 1968. Production for export, particularly in textiles, apparel, and related items, has played a significant part in Korea's industrial growth; manufactured products accounted for 74% of total exports in 1968 compared with 27% in 1962.

Under the Second Five-Year Plan the manufacturing sector will continue to be the major contributor to economic growth. Special stress has been placed on development of production facilities for intermediate goods, specifically chemicals, steel products, petroleum, petrochemicals, and cement. Because of the past performance of the manufacturing sector and the large role it will continue to play in Korean economic growth, this sector is judged to offer the best prospects for sales of U.S. equipment and materials.

The principal manufacturing industries in Korea, ranked by their contribution to national output, are: Textiles and apparel; food processing and beverages; wood, paper and paper products; chemicals; clay, glass and stone; transportation equipment; petroleum and coal products; basic metals; electrical machinery; tobacco; printing and publishing; and nonelectrical machinery. Production data and the index of industrial production for these and other industries are shown in the Appendix.

Small-scale operations characterize most of Korea's manufacturing. Of the 22,718 establishments surveyed (which represent all those employing five or more persons) by the 1966 Korean Census of Manufacturing, 92% employed between five and 49 workers. These same factories account for 27% of gross manufacturing output, 25% of the value added through manufacturing, and 23% of the book value of installed production

machinery and equipment. At the other end of the scale, 379 establishments, or 2% of the total, employ 200 workers or more, account for 54% of gross output; 57% of value added; and 60% of the book value of installed production machinery and equipment.

The number of large establishments (those employing 200 or more) has risen more rapidly than the small or medium-sized factories. The large plants have correspondingly increased their share of value added through manufacturing from 47% in 1963 to 57% in 1966. Thus the larger establishments are growing at the most rapid rate and present the best prospects for U.S. sales. This growth in the large category has resulted from expansion in medium-sized plants which have then moved into the large-size classification. Thus, although American suppliers should concentrate their attention on the large factories with an employment of over 200, the medium-sized plants with employment between 50 and 200 should not be ignored, for they too have been expanding and will continue to do so as the economy develops.

Textiles

The textile industry is the largest industrial branch in both production and exports. The manufacture of textiles, wearing apparel, and made-up textile goods

accounted for 19% of the value added in manufacturing as a whole in 1966. Yarn and fabrics each account for 40% of total output, with the remainder consisting of finished products such as nylon socks, knitted underwear, acrylic sweaters, and fish nets. Roughly half of total production consists of cotton textiles, but production of wool and synthetic fabrics has risen sharply. The production of silk fabrics has remained relatively stable over the past 3 years at a level just under 4,000 square meters. A number of projects have been undertaken in the man-made fiber field and more are planned in conjunction with the completion of the Ulsan petrochemical complex as discussed under the section on the chemical industry. Increasing proportions of Korean cotton textile production are now in better quality and higher yarn count goods.

The textile industry is to undergo considerable expansion as detailed under the section on textile machinery in Chapter III. The planned production of man-made fibers, yarns, and fabrics will result in a reduction in the current level of imports of such products, which were running at about \$110 million in 1968 and were almost exclusively supplied by Japan. Indicative of the growth expected in the textile industry is the target set under the Second Five-Year Plan for production of cotton yarns—92,000 tons in 1971 as compared



The wool textile industry has made remarkable progress under Government development planning.



A visitor shows considerable interest in a food packaging machine displayed at a U.S. Department of Commerce-sponsored exhibition held in Seoul.

to 1965 production of 66,000 tons, and 14,000 tons of worsted and synthetic yarns as compared to 1965 output of under 6,000 metric tons.

Food Processing and Beverages

The second largest manufacturing activity in Korea, food processing and beverages, is characterized by a very large number of small-scale establishments. Growth in this industry, particularly food processing, has been uneven. In terms of value of output, grain milling, and the production of distilled spirits, rice wine, beer, and condiments have been the most important. Demand for wheat flour fluctuates in inverse proportion to the availability of rice. As of 1966, there were 34 modern mills with a combined annual productive capacity of 46,002 barrels of flour, a capacity greatly in excess of the need for such facilities. A similar over-capacity characterizes the sugar refining industry, whose four operating enterprises process imported raw sugar, and the 24 distilleries processing alcohol from sweet potatoes, which had an annual capacity of 75,550 kiloliters in 1966.

The Oriental Brewing Company and the Chosun

Brewery monopolize beer production in Korea, which has nearly quadrupled from 1963 to 1968 in response to growing consumption. A similar trend has been noticeable for soft drinks, production of which tripled from 1963 to 1968.

The most promising opportunities for American suppliers of processing and related equipment lie in the canning and freezing sector of the industry, for the Government has placed great emphasis on development in this area both as a means to improve earnings from agriculture and fisheries and as a means of boosting exports. In 1967, the Agriculture and Fishery Development Corporation (AFDC) was established by the Government to develop both the domestic and export potential of the agro-fisheries industries. The general strategy of the corporation, capitalized at 10 billion won, is to create a limited number of large food processing complexes. These complexes will initially handle the abundantly available seafood, and will later include fruit and vegetables. They also will include quick-freezing and freeze-drying plants, canning and bottling plants, and related operations.

The AFDC also plans to establish modern food dis-

tribution centers. In 1966, there were 108 enterprises in the canning business. Of these, 46 were fish canneries, and their main products were mackerel, yellow-tail, cuttle fish, shrimp, and clams. The canning of agricultural products in 25 plants consists mainly of tomato and apple juice, white peaches, and mushrooms. The remaining canneries pack various types of meat. As of 1966, there were 121 plants producing frozen food and ice with a daily capacity of 701 tons of frozen food and a storage capacity of 21,640 metric tons. Seafood, particularly shrimp, makes up most of the frozen food production, nearly all of which is exported.

Wood, Paper and Paper Products

Production in this area has been growing rapidly, with the value of gross output increasing from 13,291 million won in 1963 to 38,180 million won in 1966. The leading subgroups according to value of production in 1966 were plywood and veneer panels, 12,539 million won; sawmill products, 8,664 million won; printing paper, 4,026 million; newsprint, 2,803 million; kraft paper, 2,218; and processed paper, 2,020 million. The number of workers increased from 23,224 in 1963 to 33,519 in 1966, amounting to approximately 6% of total manufacturing employment in the latter year. The plywood and sawmill products industries employed 16,738 workers in 1966, or roughly 50% of sector employment.

The plywood industry is the most important in this sector, accounting for 33% of the value of output and 29% of employment in 1966. It is especially important as an earner of foreign exchange. Exports were valued at \$66 million in 1968, and the Second Five-Year Plan envisaged that plywood exports would be the country's largest single foreign exchange earning commodity by 1971. Due to the lack of suitable domestic wood resources, Korea must import the raw material. Total imports of logs, the major portion of which were used in plywood production, were valued at \$87 million in 1968.

Plywood is produced in six plants equipped mainly with modern facilities, including 21 rotary lathes, 22 dryers, eight auto clippers, 18 hot presses, and four auto belt sanders. Demand for plywood was such that in 1968 utilization of capacity was 98.2%.

The development of the paper industry was accommodated by a substantial expansion of production facilities and a diversification of the type of paper products produced, all of which made a significant contribution to self-sufficiency in the domestic paper sector. In 1966, 92.3% of the domestic paper demand was

filled by domestic production, compared to a 38% dependency on imported paper in 1960.

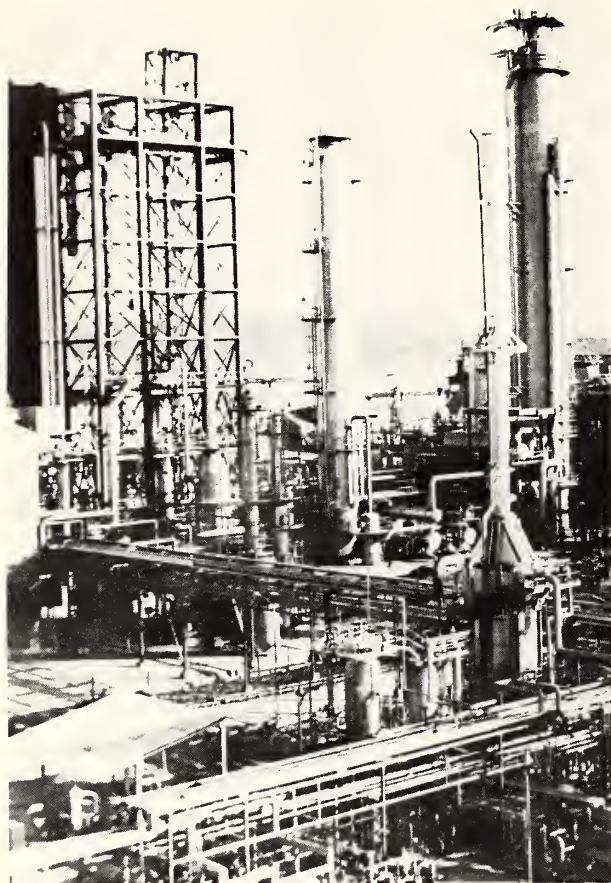
Of the 60 paper mills in operation in Korea, 12 large-scale plants produce newsprint, printing, and kraft paper; the remainder turn out various types of one-side paper. In 1966, 85% of the 192,000-ton paper producing capacity was utilized. Average annual production increased by 22% during the period 1960-66. Current pulp production capacity has been far below the domestic requirement and the importation of pulp has grown each year as production of paper has increased.

Chemicals

The chemical industry has been among the fastest growing industries in Korea, reflecting the Government's decision to develop import-substitution industries. In view of the expected expansion and construction of chemical facilities, U.S. exporters should be alert to opportunities for sales of chemical catalysts, pumps, centrifuges, valves, industrial control equipment, and associated machinery. Production of fertilizer and the associated chemical inputs, and present and planned output of man-made fibers, plastics, and petrochemical intermediates, make up the most important sectors of the Korean chemical industry in terms of future growth. Pharmaceuticals, soaps, paints, and cosmetics, however, accounted for 57% of the value added in this industry in 1966. Plants in these areas are, in many cases, small and poorly equipped. The pharmaceutical industry is discussed in Chapter III.

Forty-four firms employing 1,663 persons were producing dyestuffs, paints, and pigments in 1966. Gross output in that year was valued at 2,311 million won and value added amounted to 696 million won. Of the three, the paint or coatings industry was by far the largest, accounting for 73% of gross output, 71% of value added, and 59% of employment. Korea's leading paint producers are the Daihan Paints and Ink Manufacturing Company and the Samhwa Paints Manufacturing Company, both located in Seoul, and the Kunsul Chemicals Manufacturing Company in Pusan. The three are relatively large and well-equipped companies with average annual capacities of between 2,000 and 3,000 tons.

Production has increased rapidly in recent years. The production index for the paint industry rose from 100 in 1962 to 258 in 1967, reflecting expansion in housing and building, the furniture industry, and the transport equipment industry which together consumed 99% of production in 1966. The major paint products manufactured in 1966 and the percentage of total out-



A fertilizer plant in Ulsan. Korea has become self-sufficient in urea fertilizer.

put represented by each were oil paints (22%), enamel paints (20%), and varnishes (15%). Korean producers supplied 97% of domestic consumption in 1966.

In soaps, synthetic detergents are cutting into the position previously held by soap based on beef tallow. Prominent in the manufacture of soaps and detergents are Aekyong Fats and Oils, Lucky Fats and Oils, Mukungwha Fats and Oils, Pyunghwa Fats and Oils, Chungwang Fats and Oils, and Kumsung Chemical.

The combined annual fertilizer production capacity of the Korea Fertilizer Company (plant completed in 1967), the Chungju Fertilizer Company, the Honam Fertilizer Company, Yongnam Chemical Company (plant completed in 1967), Chinhae Chemical Company (plant completed in 1967), Pungnong Fertilizer Company (plant completed in 1967), Samchok Industrial Company, and Kyungki Chemical Industry Company totals some 1,150,000 tons of fertilizer. This breaks down into 668,000 tons of urea fertilizer, 361,000 tons of compound fertilizer, 100,000 of fused phosphate, and 23,000 of calcium cyanamide.

Expansion is being planned for the Honam plant, and AID has approved a \$5 million loan to Chungju for construction of a new ammonia plant with a design capacity of 907 tons per day and a new urea plant with a production capacity of 700 tons per day. Korea is now self-sufficient in urea fertilizer and, with the planned plant expansions, will remain so. Imports of sulfur, rock phosphate, and potash, however, will grow at high levels in order to sustain production of mixed fertilizers. In 1968, imports of natural phosphates totaled \$6.5 million, and of sulfur, \$3.5 million.

Ammonia and sulfuric acid plants have been established in conjunction with the production of urea fertilizers. With the completion of two 150,000-ton sulfuric acid plants at Yongnam Chemical Company and Chinhae Chemical Company, installed sulfuric acid capacity is rated at 360,000 tons per year. Sulfuric acid is consumed largely by the fertilizer plants, but small amounts are used to make viscose rayon, in the concentration of tungsten ore, and in the manufacture of aluminum sulfate. With the completion of three fertilizer plans in 1967, particularly the Korea Fertilizer Company, the production capacity for ammonia increased from 89,000 tons in 1966 to 537,900 tons in 1967. Chungju Fertilizer Company will add an ammonia production facility, and in addition to making fertilizer, ammonia will be used in the planned petrochemical complex at Ulsan for producing caprolactam and acrylonitrile. The ammonia will also be used for the production of soda ash, an industrial chemical used in Korea for glass, tungsten ore refining, and the pulp and paper industry. Korea's first soda ash plant went into operation in 1968 with an annual capacity of 65,000 tons, an amount sufficient to replace current imports.

Output of plastic products has quadrupled since 1965 to reach 45,100 tons in 1967. The rapid growth in the plastics processing industry, which included 94 factories in 1966, has stimulated Government interest in establishing a petrochemical complex. This planning has been reinforced by the growing use of man-made fibers by the Korean textile industry and the expanding capacity for the production of man-made fibers.

All three nylon fiber producing plants (Korea Nylon, Hanil Nylon, and Tong Yang Nylon) are completing expansion plans to bring total nylon production capacity to 9,900 tons a year. Dae Han Synthetic Fiber Company is operating a 6-ton-a-day plant for the production of polyester fiber, and Sam Yang Sa Company was to open in 1969 a 12-ton-a-day polyester fiber plant. Polyacrylic fiber is produced by the Hanil Synthetic Fiber Company, which has an annual capacity of

2,700 tons (which was planned for expansion to about 11,000 tons in 1969), and Tong Yang Synthetic Fiber Company with an annual capacity of 2,160 tons. A third acrylic fiber plant with an estimated annual capacity of 4,320 tons is being built by Shinhan Synthetic Fiber Company. Mijin Chemical Company, the only Korean producer of polyvinyl acetate fibers, is planning to expand its capacity from 500 to 2,200 tons a year. Mijin Chemical Company also has a yearly production capacity of 231 tons for polypropylene fibers which, together with the Koryo Synthetic Fiber Company and Cheil Synthetic Fiber Company (both of which began operations in 1969), brings Korea's production capacity for polypropylene fiber to 2,400 tons a year.

Additional plans for the production of synthetic fibers are being initiated. At present, domestic production of man-made fibers meets only a portion of consumption, but expansion plans will reduce Korea's reliance on imports of man-made fibers. For 1971, the Second Five-Year Plan set production targets of 9,900 tons of rayon, 13,200 tons of polyacrylic fiber, 6,600 of polyester fiber, 3,300 of polyvinyl acetate fibers, 1,700 of polypropylene, and 9,900 tons of nylon yarn. With the opening of new plants in 1969, most of these goals were met prior to the target date.

In plastics, the first plant came on stream in 1966.

Financed by a Japanese commercial loan, it is owned by Daehan Plastics Company. The plant annually produces 6,600 tons of polyvinylchloride based on acetylene from calcium carbide. A second plant, owned by Kongyong Chemical Company, also producing 6,600 tons of PVC and also Japanese-financed, started operation in 1967. The completion of Korea Chemical Industries Company's 15,000 ton PVC plant, Woo Poong Chemical Company's 10,000 ton PVC plant, and Hailim Chemical Company's 7,000 ton PVC plant brought total PVC production capacity to 44,600 tons a year. Some plasticizers are manufactured in Korea, including DBP, DOA, and DOP, by the Korea Chemical Industries Company. In addition, a phthalic anhydride plant with an annual production capacity of 4,200 tons, owned by the Aekyung Fats and Oils Processing Company, began operations in 1968.

The plastics and man-made fiber industries will be the principal consumers of the output of the petrochemical complex to be constructed at Ulsan at a total investment of about \$200 million. American firms are expected to play an important role in the development of this complex through joint ventures, loans, and technical assistance. The chief element in the complex is to be a naphtha cracker, using raw material supplied by the 115,000 barrel-per-day oil refinery at Ulsan owned by the Korea Oil Company (KOCO), a joint venture



Chinhae Chemical Co., located in southeast Korea, is a U.S.-Korean joint venture capable of producing annually 180,000 metric tons of mixed fertilizer.

between the Korean Government and Gulf Oil.

Centered on this facility—whose annual production capacity is planned at 100,000 tons for ethylene, 70,000 tons for propylene, 12,000 tons for butadiene, 62,300 tons for benzene, and 37,300 tons for cyclohexane—plans are being made for plants for the production of vinylchloride monomer (67,000 tons per year), polyethylene (50,000 tons per year), polystyrene (6,000 tons), caprolactam (33,000 tons), ethylene glycol (12,000 tons), acrylonitrile (26,700 tons), synthetic rubber (15,000 tons), acetaldehyde (26,000 tons), alkyl benzene (10,000 tons), and polypropylene (20,000 tons).

The Korea Oil Company is scheduled to complete construction of a new naphtha cracker by December 1970. Dow Chemical Company and the Chungju Fertilizer Corporation, a Korean Government-owned enterprise acting as the Government agent in implementing the plans for the petrochemical complex, have signed a basic agreement for construction of the polyethylene and vinylchloride plants. As already mentioned, AID has recently approved a \$5 million loan to help finance the construction by the AN Company (a Korean corporation to be owned jointly by the Chungju Fertilizer Corporation and Skelly Oil Company) of a plant capable of producing 60 million pounds per year of acrylonitrile monomer.

AID also recently approved a \$5 million loan to help finance construction by the Chungju Fertilizer Corporation of an ammonia plant with a design capacity of 907 tons per day and a new urea plant with a daily production capacity of 700 tons. The project is complementary to the petrochemical complex, as it is expected that part of the ammonia production will be used by the acrylonitrile and caprolactam plants to be constructed at Ulsan. Other parts of the petrochemical complex are in various stages of planning with the most important ones, caprolactam and polypropylene, being the most advanced. The Korean Government is planning on 1971 start-up dates for all elements of the complex.

Clay, Glass and Stone

In the clay, glass and stone sector, the cement, glass, and, to a lesser extent, refractory industries, are the most important in terms of future development.

The cement industry is one of Korea's largest manufacturing industries with over \$60 million in sales in 1967. Although output has grown rapidly, from 778,000 tons in 1963 to an estimated 3,100,000 tons in 1968, it did not match consumption, estimated at about 4 million tons for 1968. The Second Five-Year Eco-



This laboratory is part of the Hankuk Glass Industry Company, one of the two largest Korean glass-producing firms.

nomie Development Plan conservatively estimated that demand for cement would triple over the plan period and that if the output target, 4,520,000 tons, was to be met, an investment of approximately 12,200 million won would be required. This target has already been outstripped by developments.

At the end of 1968, annual cement production capacity had reached 4.8 million tons. Of the six cement companies in Korea, the Ssangyong Cement Industrial Company, with its newly completed 1.7 million ton plant at Samwha and total annual capacity of 2.4 million tons, is the largest. Other producers include Tongyang Cement Manufacturing Company (700,000 tons), Chunghuk Cement Manufacturing Company (500,000 tons), Hyundai Construction Company (400,000 tons), Hanil Cement Manufacturing Company (400,000 tons), and Korea Cement Manufacturing Company (360,000 tons).

A new 1 million ton plant is to be constructed in 1969, and the expansion of an existing plant will add another 500,000 tons to existing capacity. Industry spokesmen estimated that domestic production will reach 12 million tons in 1971, allowing for cement exports of 2 million tons.

The import component in cement production is relatively small when compared to most other types of manufacturing in Korea. With the exception of gypsum, bituminous coal, and fuel oil, only locally available raw materials are required. However, cement pro-

duction does require the use of machinery which is not manufactured domestically. In the near future Korea will need to import machinery, such as motorized bridge cranes, weighing feeders, air heaters, and miscellaneous motors, to equip its new cement-producing facilities and to replace the smaller-size kilns now being used.

The Korean glass industry is dominated by two firms, the Hankuk Glass Industry Company, sole producer of plate glass, and the Daehan Glass Industry Company, which produces well over 25% of all Korean glassware.

The high utilization of installed plate glass capacity justified a recent 200,000 case expansion in capacity, bringing total plate glass production capacity to 800,000 cases per year. Growth in construction has been such that further expansion may be in order in the near future. Plate glass production in 1968 was 702,000 cases, while glassware production reached 60,000 tons in 1968. The glassware industry needs to modernize and reorganize the facilities of its numerous small producers so as to improve production capacity and to increase utilization of existing plants.

The growing Korean glass industry will require increased imports of borax, boric acid, zinc oxide, and de-oxidizing agents, as well as new glass-working machinery. Korean imports of glass-working machinery increased from \$209,000 in 1967 to \$680,000 in 1968. The possibility of joint ventures to develop the production of specialized glass products not presently manufactured in Korea, such as safety glass, polished glass, foam glass, glass for electric use, and glass fiber, offers opportunities for U.S. investors.

Korea's refractory industry has recently undergone substantial expansion and renovation of production facilities. In 1966, the industry had 14 refractory fire-brick plants with a combined capacity of 77,000 tons a year, an increase of 66% from 1961. Five large modern plants accounted for 77.2% of total capacity. As a result of increased demand for cement, glass, chemicals, iron and steel, production of refractories increased by 125% between 1960 and 1966. Despite this growth, Korean imports of refractories increased from \$420,000 in 1965 to \$2.2 million in 1968. A top priority for the industry is the replacement of obsolete conventional facilities of small size plants with modern plants in order to increase the degree of capacity utilization for the industry as a whole.

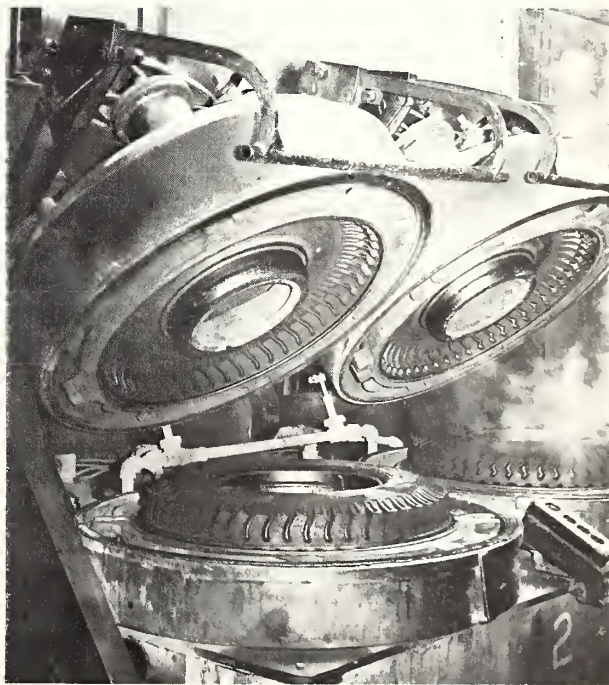
Transportation Equipment

Rapid growth of Korean industry coupled with expected population increases have combined to support

a rapid rate of growth in the transport equipment industry. From 1963 to 1966, output increased in value by approximately 270%, while value added rose from 2 billion to 8.4 billion won. Ranking fifth in number of employees in the machinery industry, transport equipment manufacturers employed 5.4% of those working in the manufacturing sector.

The Korean market for motor vehicles will expand greatly in the near future as a result of rapid economic development and the Government's plans to construct a modern highway system. Three Korean firms, all under license from foreign producers, are competing in this limited but growing market. The Shinjin Motor Company, affiliated with Toyota Motor Company of Japan, the Hyundai Motor Company, affiliated with the Ford Motor Company, and Asia Motors, affiliated with Fiat France S.A., had a combined output of 18,055 motor vehicles in 1968. Total production capacity of these firms is estimated at about 34,000 units annually. This seems quite large in relation to the total of 77,480 vehicles registered in the entire country in 1968.

Despite an increase from 295 ships, amounting to 4,667 gross tons in 1962 to 356 ships amounting to 17,782 gross tons in 1966, the number of ships built in Korea during the Second Five-Year Plan period will be far short of the number needed even to meet domestic demand. The shipbuilding industry depends on foreign suppliers for roughly 50% of the raw materials re-



Tire manufacturing facilities are expanding in line with the establishment of automobile assembly operations and the construction of a modern highway network.

quired. Major imports, most of which are not purchased from Japan, include steel plate, steel pipe, steel shape, diesel engines, auxiliary machinery and timber. The largest of the 309 shipbuilding and repairing establishments is the Korean Shipbuilding and Engineering Corporation.

Petroleum

Korea's first oil refinery, a joint venture between Gulf Oil Corporation and the Korean Government, began operations in 1964. Having completed two expansion projects, the refinery is now able to process 115,000 barrels of imported crude oil a day. Ground was broken at Yosu in 1967 for the Honam oil refinery, a joint venture between Caltex and a private Korean firm, which started up in 1969 with a capacity of 60,000 barrels per day. By 1972, Korea hopes to have three refineries with a total capacity of 220,000 barrels per day. In 1967, Korea's one oil refinery produced 427,622 kiloliters of gasoline, 216,146 kiloliters of kerosene, 649,135 kiloliters of diesel oil, 348,461 kiloliters of fuel oil, and 809,645 kiloliters of Bunker "C". Crude oil to feed the refinery is imported largely from Kuwait, and the Government has estimated that \$111 million worth of crude oil will have to be imported in 1970, more than double the amount imported in 1967.

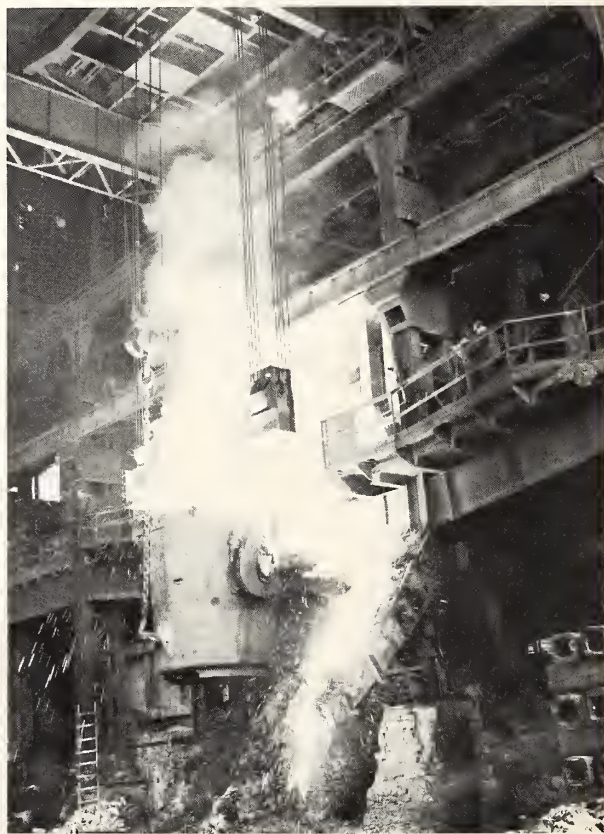
Basic Metals

Demand for iron and steel and non-ferrous metals has grown markedly in response to construction activities associated with Korea's economic development and the country's growing industrialization. Total iron and steel consumption originating both from domestic production and imports rose from 278,200 tons in 1964 to 637,000 tons in 1967. Crude steel capacity has been insufficient to meet raw material requirements of domestic rolling mills, the annual capacity of which was rated at 700,000 tons at the end of 1967.

Substantial imports of pig iron (46,415 tons in 1967, of which 4,080 tons came from the United States), supplement domestic production (31,130 tons in 1967), and imports of steel ingots (20,300 tons in 1967) add to domestic production of 329,000 tons in 1967. In addition, large quantities of iron and steel scrap continue to be imported. In 1967, such imports amounted to 287,346 tons, of which 280,991 came from the United States. Privately owned mills are meeting the rapidly growing demand for crude steel by installing electric furnaces to remelt iron and steel scrap. During 1966 and 1967, electric furnaces with a total production capacity of 300,000 tons per year were installed and further projects are being developed.

Korea has only one non-ferrous smelter, the Changhang Smelter Works. Korea's growing demand for copper is further met by imports of copper and conversion of imported copper scrap into electrolytic copper. Zinc is produced at the Tongshin Works. Under the Second Five-Year Plan the annual capacity of zinc is to be increased from 4,800 tons to 9,600 tons. In addition, Young Poong Mining Company was planning to complete a zinc smelter and sulfuric acid plant in 1969.

A 15,000 ton aluminum refining plant to process primary aluminum into ingots is being planned to meet the demand for this metal. Imports of aluminum ingot in 1968 amounted to 13,184 tons (10,117 tons from the United States). There are some 20 non-ferrous metal rolling mills with an average annual capacity of about 200 tons each. With an annual capacity of 5,000 tons, Han Yung Aluminum Industrial Company, Ltd. is the largest company in this field. The making of building materials such as window sashes, household utensils, and plate for railway cars comprise the chief uses of aluminum in Korea.



Korea is continuing to increase its production of crude steel.

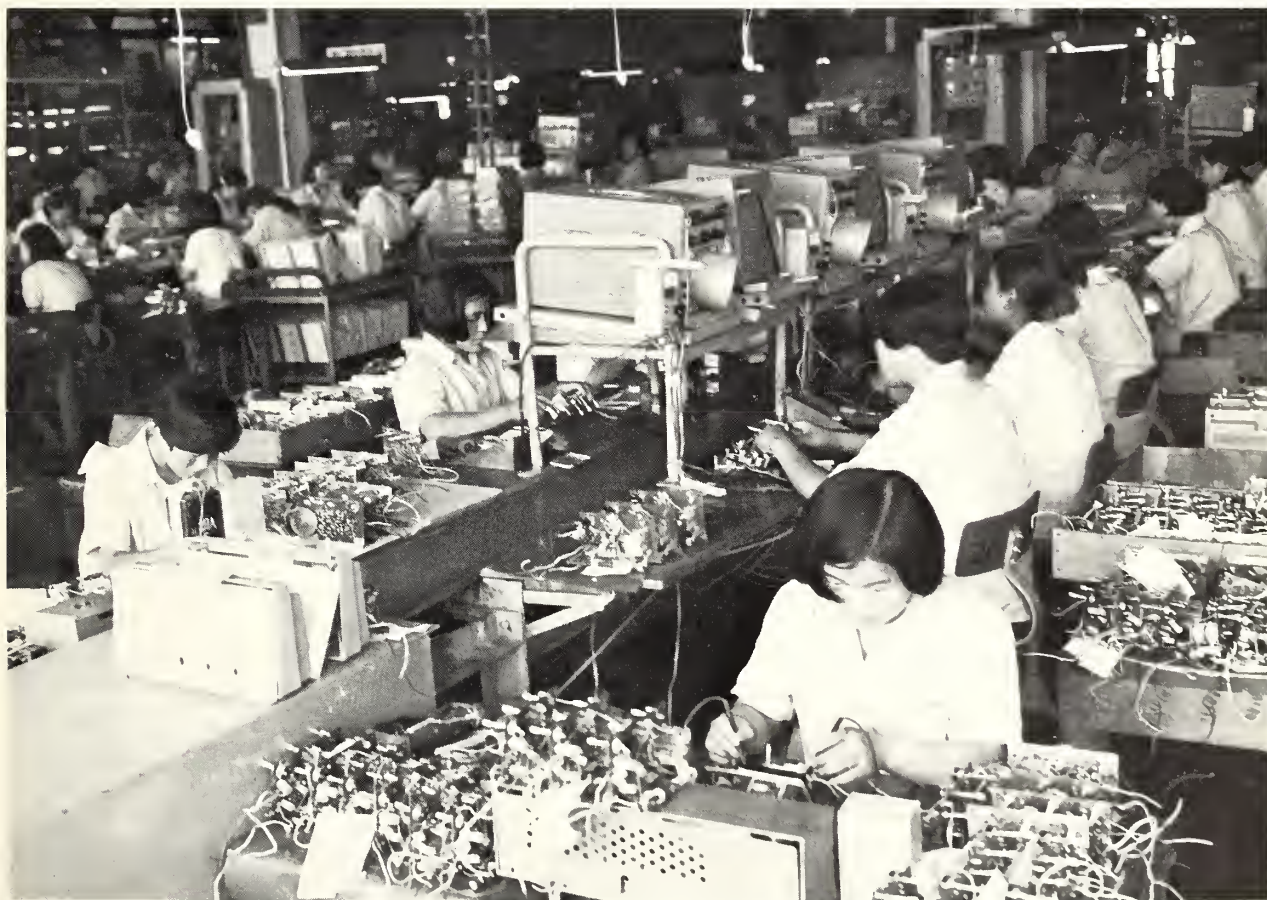
Electrical Machinery

The Korean electrical machinery and apparatus industry has been growing at a record pace. Increases of 288% in value added and 218% in gross output occurred between 1963 and 1966. The industry has also become an important source of employment, providing 18,000 positions, or 3.3% of all employment in the Korean manufacturing sector. In 1966, 17% of the 361 establishments producing electrical machinery and apparatus accounted for 82% of the industry's total output. Considerable detail on the local electrical machinery industry is contained in the sections on electrical power machinery and electronics and telecommunications equipment in Chapter III.

The Government hopes to promote greater self-sufficiency in the production of electrical equipment, thereby generating an import demand for such items as machine tools, wire-drawing machinery, and testing

equipment. Such plans are not expected to cut into imports of special purpose and heavy electrical equipment for some time. Although producing only 27% of the industry's gross output, the nonindustrial electrical apparatus subgroup accounted for over 50% of the industry's value added in 1966.

The high value-added ratio, about 81%, is a major reason for the Government's promotion of electronics as a leading export industry. Based on the growth of Korean electronic exports, from about \$1.4 million in 1965 to approximately \$4.3 million in 1967, the Government has set export targets of \$21 million and \$100 million for 1968 and 1971 respectively. Expansion of electronics imports will be essential if continued growth is to take place, as Korea has very few specialized producers of parts for such products as transistor radios and TV sets. Finally, the great potential of the electronics industry in Korea is reflected in the fact that 10 U.S. electronics manufacturers had invested \$10.9 million in this industry as of July 1969.



Electronics is a rapidly expanding part of the Korean manufacturing sector. A large number of American firms have established subsidiaries for the production of electronic products.



Two U.S. firms have entered into a joint venture with Korea's Agriculture and Fishery Development Corporation for the processing of leaf tobacco for export.

Tobacco Products

The tobacco industry in Korea is Government-owned; four plants are currently in operation using locally grown tobacco. Filter cigarette production has increased from 8.9 billion cigarettes in 1965 to 13.7 billion in 1967, but non-filter cigarette production has decreased slightly, from 17.6 billion in 1965 to 17.1 billion in 1967. To keep pace with growing consumption (Korean cigarette smokers are estimated to number about 8 million), construction began in 1967 on two new tobacco manufacturing plants which together will have an annual capacity of 6,700 million cigarettes.

Printing and Publishing

The printing and publishing industry has experienced moderate growth. The high literacy rate (some 90%), coupled with the premium placed on education by Koreans and the high rate of school attendance, make printing and publishing a more important industry than in many developing countries.

Between 1963 and 1966 gross output increased by 124%. Employment grew by only 39% during these years, indicating a substantial increase in the industry's labor productivity. This increase in productivity is in part explained by a 71% rise of investment in tangible fixed assets during the period.

In 1966, the leading components of this industry were newspapers, books and periodicals, and commercial printing. The newspaper subgroup was responsible for 40% of gross output and 30% of employment; books and periodicals accounted for 24% of gross output and 20% of employment; and commercial printing used 31% of the industry's workers to produce 20% of the gross output. As of 1969, some 1,600 book publishers were registered with the Ministry of Culture and Information; of these, only 25 can be counted as major publishers. The Korea Publishers' Association reports that in 1968 some 7,784 titles were published as compared to 6,364 titles in 1967. The combined circulation of Korea's 36 dailies is estimated at about 2 million.

Imports of printing and bookbinding machinery and

parts thereof totaled \$3,190,000 in 1968. Although most of this equipment is supplied by Japan, Germany and the Netherlands are sources of a significant portion.

Nonelectrical Machinery

The nonelectrical machinery industry in Korea is characterized by one of the slowest growth rates in the manufacturing sector. Although demand for this type of machinery has been increasing rapidly, a substantial portion of this demand has been met through imports. The industry suffers from the disadvantage of small-scale production and inadequate technology. At the same time, there has been a large volume of foreign equipment loans in recent years in connection with development projects, while the scarcity of domestic funds has limited the demand for locally produced machinery despite the investment boom.

The value of gross output increased from 3.5 billion won in 1963 to 9.7 billion won in 1966, while employment grew by 52% to reach 22,005 in 1966. Major items of nonelectrical machinery produced in Korea are prime movers, construction and mining machinery, textile machinery, agricultural machinery, and office, service, and household machines.

The prime movers industry, composed of 21 boiler and 153 engine makers, produced 317 boilers and 1,028 engines for farming and transportation in 1966. While boiler production has lagged in recent years, a rapid increase in demand is anticipated as new plants are established and old boilers are replaced. Eight large-scale establishments and over 300 small enterprises produce industrial machinery, which is chiefly made-to-order. This industry, which produces textile machines, agricultural machinery, mining equipment, and printing machines, is notable for its under-utilization of capacity and its relatively slow rate of growth.

The Second Five-Year Plan calls for the rapid development of the industrial machinery industry, and, beginning in 1969, a Government loan fund was established to promote the Korean machinery industry. The intent is to enable Korea to produce automobile parts, railway rolling stock, agricultural machinery, and other equipment. It is expected that, through the assistance of foreign countries, technical know-how will be supplied and a pool of trained labor developed. This, together with the modernization of production facilities, should result in large increases in the making of internal combustion engines (298%), power sprayers (200%), power plows (121%), cotton gins (273%), and other industrial machines during the 1967-71 period.

The sewing machine industry is equipped with the latest production equipment for manufacturing home-use machines. However, existing capacity appears to be larger than domestic demand and the amount of idle capacity is significant. Some changeover to the production of industrial sewing machines, \$2.2 million of which were imported in 1967, is to be expected.

CONSTRUCTION

Demand for construction services has more than kept pace with growth. Preparation of new industrial estates and sites, the drive to reduce the housing shortage, the continuing need for large office buildings, urban development plans for Seoul, including construction of a subway system, and the planned highway between Seoul and Pusan ensure that construction will continue to achieve growth rates approximating those reached in the past (27% in 1965, 26% in 1966, 11% in 1967, and 34% in 1968). The construction industry had a peak employment of 364,000 and accounted for 4.8% of GNP in 1968. Starting with military construction contracts undertaken during and just after the Korean War, this industry has gained much experience, and several projects in South Viet-Nam are being completed by Korean firms. Over 60 Korean engineering and construction firms each took on contracts totaling at least \$1 million during the 2-year period 1966-67.

The number of building construction permits issued in urban areas has risen steadily in recent years. Permits for the construction of 2.5 million square meters of floor space were issued in 1964, for 3.7 million square meters in 1966, 5.1 million square meters in 1967, and 6.7 million square meters in 1968. Some two-thirds of the building permits have been for brick and stone housing, and the remainder for ferro-concrete buildings.

The housing shortage has increased annually since 1960 and was estimated at 1.4 million units in 1968, despite Government efforts to rapidly expand construction. The emphasis being placed on housing can be seen in the fact that in 1967 the floor space of building permits issued for housing exceeded, for the first time since 1960, those issued for business and industrial purposes.

The housing industry in Korea represents a good market for American construction materials. In 1967 and 1968, Korea imported central heating equipment valued at \$635,000 and \$532,000 respectively, with the United States being the largest supplier. Imports in these 2 years of sanitary ware and plumbing fixtures were valued at \$443,000 and \$470,000, respectively.

The Seoul municipal government will build 100,000 new housing units by 1971. The national Government supports construction of housing through: the floating of housing bonds, loans from the Housing Fund, and the Korean Housing Bank, established in 1967.

With increasing rural migration to the cities, especially Seoul, urban development has become a major problem. Seoul has become one of the 12 largest cities of the world, and its problems are commensurate with its size. AID has extended development loans totaling \$9.2 million to establish waterworks in Taegu, Incheon, and Seoul. In addition more water treatment equipment will be needed in Seoul in 1971. Together with expansion in the water supply, the urban drainage system is to be expanded during the Second Five-Year

Plan period. The Government has programmed an investment of 4.6 billion won plus \$3.3 million in foreign exchange for the improvement and installation of urban drainage systems along 877 kms. of urban roadways. With the growth of Seoul into a modern metropolis, preliminary plans for an electric subway system of 42 kms. in length during the first phase have been drawn up by the Seoul City Government.

In summary, housing and urban problems together with major infrastructure projects such as the Seoul-Pusan highway and industrial construction, will stimulate a continuing large demand for construction services. They, in turn, will generate a need for increased imports of construction machinery, building materials, and other equipment.



Construction of roads and highways in Korea is stimulating considerable demand for various materials and all types of construction equipment.

COMMUNICATIONS

A rapid rate of industrialization and an improving standard of living, together with growing involvement in international affairs, have resulted in remarkable improvements, quantitative and qualitative, in the Korean communications network.

Telecommunications services have expanded greatly in recent years in response to sharply rising demand. As of December 1967, urban telephone circuits numbered 385,000, an increase of 23% over 1966, while long distance circuits amounted to 3,729, an increase of 48% over 1966. Existing plans call for the addition of 56,100 urban lines in 1969. Further expansion is planned that will bring telephone lines to nearly 900,000 by the end of 1971. The installation of 1,368 microwave circuits in 1967, financed with an \$8.4 million AID loan, insures prompt intercity telephone service. Moreover, 1,944 intercity circuits are to be added to the long distance telephone network in 1969, and slightly larger additions will be made yearly through 1971. Telecommunications development during the First Five-Year Plan resulted in an increase in telephone subscribers per thousand persons from 5 in 1961 to 9.5 in 1966. The above-mentioned plans are to bring telephone subscribers per thousand persons to 26 in 1971.

A \$3.7 million loan in March 1968, from the Export-Import Bank of the United States, is financing a satellite earth station which will enable Korea to greatly increase its telephone and telegraph contacts with countries in Southeast Asia and the United States. A 60-channel tropo-scatter system links Korea and Japan, and a 60-channel expansion is being programmed. In 1969, the Export-Import Bank approved a \$2.6 million loan to Korea to finance the addition of 804 channels to Korea's existing 1,440 channel microwave network. After completion of this project, the Ministry of Communications foresees the need for a further expansion of about 1,200 channels.

Korea has three principal radio broadcast networks, the Government-operated Korean Broadcasting System (KBS), the privately-run Munwha Broadcasting Company (MBC), and the commercially-operated Christian Broadcasting System (CBS).

The KBS has three main services, and the programs are relayed throughout Korea by 38 regional stations. In addition to their main station in Seoul, MBC maintains 12 substations, and CBS has four local stations. A number of individual radio stations, including those operated by the universities, make up the remainder of the Korean radio network. The number of radio sets in

Korea was recently estimated at 1,525,000. In addition, there are 1,327,000 wired receivers programmed by the Ministry of Public Information.

There are two television networks in Korea. The Government-operated KBS-TV started regular service on December 31, 1961, and now has 6 relay stations allowing it to cover most of the nation. The privately-owned and operated Tongyang Broadcasting Corporation initiated TBC-TV broadcasts on December 7, 1964, and now has a branch station in Pusan as well as Seoul. KBS-TV collects fees from audiences and telecasts commercial advertisements, while TBC-TV is operated with revenues from commercial advertisements alone. Korea also has a U.S. Army-operated television and radio station, AFKN. Approximately 150,000 TV sets are estimated to be in use throughout Korea with 81,984 registered with KBS-TV. The possibility of opening a privately operated education television station is now under consideration.

The general modernization of the Korean economy has exerted strong pressures on the postal system to expand. Since 1960, the amount of mail handled by the postal service has more than tripled, with the number of letters and parcels handled in 1968 exceeding 480 million. The number of post offices has also increased rapidly with a 25% rise between 1966 and 1967 and a further expansion of about 10% planned by 1971. The increased number of post offices has resulted in the attainment of the Government's target of one office per myon (the smallest administrative unit) and the reduction of the area covered per office to 56 square kilometers.

ELECTRIC POWER

Modern industry is heavily dependent on the development of an adequate and economical supply of electric power. In Korea, electric power development has been hampered by emphasis on its development in the north by the Japanese prior to 1948, the poor quality of its anthracite coal, uneven hydroelectric resources, and the lack of known petroleum and natural gas resources.

Until 1968, the Korean electric power industry was monopolized by a Government run enterprise, the Korean Electric Company. In that year private projects were approved for the Kongin and Donghae thermal power projects. The former is planned as a joint venture between Union Oil Company of California and the Korean Explosives Company.

Despite the natural obstacles to increasing electric power production, Korea has experienced rapid growth

rates in recent years averaging 15.5% in supply and 17.6% annually in consumption over the period 1956 to 1967. It is only in recent years that the electric power investment program was large enough to overcome shortages caused by the rapid growth in industry and the general consumption of electricity. Supply grew from 1,697,000 megawatt-hours (mwh) in 1960 to 2,700,000 mwh in 1964, 4,911,000 mwh in 1967, and 6,000,000 mwh in 1968. The supply of electric power, by type of generation, has changed significantly, with reliance on hydroelectric power decreasing from 34% in 1960 to 15% in 1968 and the share of thermal power rising from 65% to over 84% during the same period.

In 1965, the addition of Chunchon Hydroelectric, Yongwol Therman #2, and Somjinhang Hydroelectric power plants, and increased capacity in older plants, raised South Korea's generating capacity enough to exceed power demand for the first time since 1948. Electric power capacity stood at an estimated 1,274.2 million kw at the end of 1968. This required an expansion of 303 million kw in 1968 and was sufficient to meet the 1968 demand. Nine plants scheduled for completion by December 1971 should provide an additional 1,450,000 kw to existing capacity. If less firm plans are included, electric power capacity may rise to as much as 3,800,000 kw by the end of 1971.

TRANSPORTATION

Transportation is a strategic sector in modernizing countries and has often been a severe bottleneck to economic development. In Korea, where industrialization has been taking place at a remarkably rapid rate, increased demand for transportation has resulted in a general undercapacity and a consequent congestion in all modes of transport. Recognizing this fact, the Korean Government has taken a number of steps aimed at alleviating the problem.

The most outstanding characteristic of the Korean transportation system is the importance of the railroad. Railroads accounted for 91% of all freight and 46% of all passenger traffic in 1966. The Government-owned Korean National Railroad (KNR) consists of approximately 1,750 miles of main line standard gage track, 77 miles of narrow gage, and 287 miles of siding and station track, which service all the principal industrial areas, ports, and cities. In 1968, the KNR carried nearly 28 million metric tons of freight and over 150 million passengers.

The undercapacity problem faced by the railroads is in part explained by the fact that investment in the railroad industry was concentrated on construction of new lines during the period 1962-65, rather than in



This ceremonial opening of a new Korean railroad line was held in February 1968.

areas that would increase capacity. To rectify this situation, emphasis will be placed on investments in rolling stock and locomotives, increasing line capacity, and constraining new line construction wherever possible during the period of the Second Five-Year Plan.

The KNR plans to replace all steam locomotives with diesels during the first part of this period. As of December 1967 Korea had 252 diesel locomotives, all purchased with AID funds. Additional purchases of 40 diesel locomotives in 1968 and 25 each year thereafter through 1971 were planned by the KNR. A major step in meeting the 1968 objective was made when the Export-Import Bank agreed to finance the purchase of 30 diesel locomotives, spare parts and related services in 1968. Korea's rolling stock consisted of 1,559 passenger coaches and 12,793 freight cars at the end of 1967 with plans to expand this level to 2,150 and 15,500, respectively, by 1971. Late in 1967, the KNR received an \$11 million credit from the International Development Association, a World Bank affiliate, which will be used primarily to finance the purchase of 600 hopper cars and 450 tank cars.

The present condition of the 20,443 mile Korean road network, of which 24% is intercity, is poor. Only 1,200 miles of the road system are paved and only 800 miles are intercity. Korea is working to improve this situation and plans to pave 1,000 additional miles of road, and to improve 1,950 miles of road. Another

development of major importance was the ground-breaking in early 1968 for a limited access toll highway to be constructed between Seoul and Pusan which had a target completion date of 1969. The number of motor vehicles in Korea has increased greatly as a result of rapid industrialization and is expected to expand further as the highway system is modernized. In December 1967, there were 60,697 registered motor vehicles in Korea, 57% of which were engaged in commercial operations.

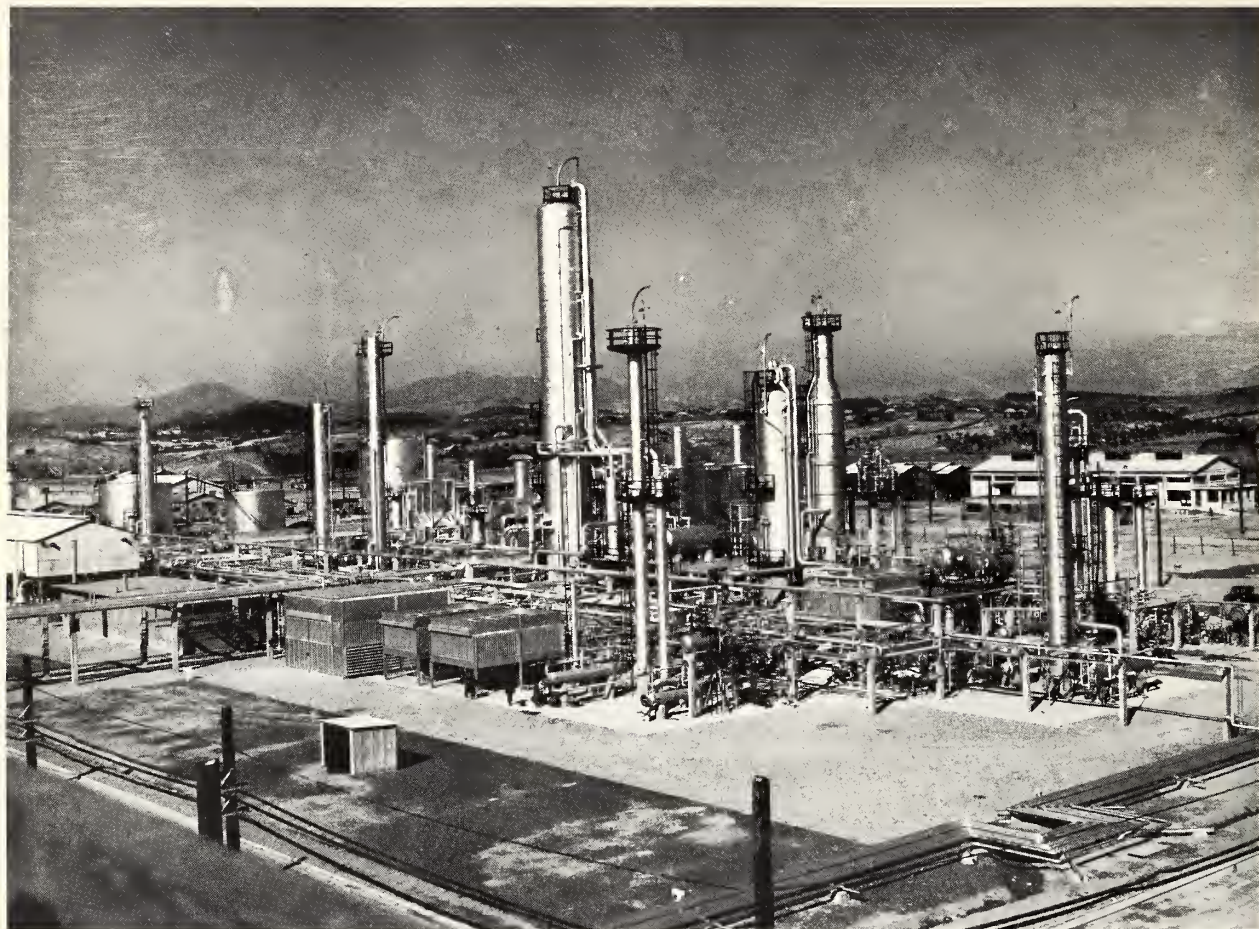
The amount of cargo handled annually in Korean ports grew from 7.6 million tons in 1962 to 13 million tons in 1966 and is expected to reach 46 million tons by 1971. Pusan, Korea's most important port, has an annual cargo handling capacity of 5 million tons which is to be increased to 8.3 million tons by 1976. The Nation's ocean-going fleet more than doubled between the end of 1965 and August 1967 to 301,000 gross tons while the number of vessels increased from 66 to 83.

Although original plans called for a much more modest increase, revised plans, beginning in 1967, envisioned an addition of 50 ships, totaling 629,000 gross tons by 1971. In order to expand the operations of ports and harbors to handle the expected increase of import and export cargoes, the Second Plan emphasizes the repair of loading and unloading facilities and piers of major ports. Large investments were made in 1967, using property claims funds from Japan, in projects to improve main transport facilities.

Korean Air Lines (KAL), founded in 1962, is the flag carrier of the Republic of Korea. KAL carried 215,000 passengers and 3 million pounds of freight in 1967. AID funds have been used to help in the development of terminal service capacity at the Kimpo (Seoul) and Pusan airports. An AID loan, approved in 1966, provides \$4.2 million in foreign exchange for the development of navigation facilities.



Shinjin Motor Company, assembling Japanese Toyotas, now must compete with Ford and Fiat assembly operations in Korea.



Korea Oil Corporation, a joint venture between the Korean Government and Gulf Oil, operates this refinery at Ulsan.

GOVERNMENT

Government consumption expenditures accounted for 11.2% of GNP in 1967. Capital outlays make up a major portion of general Government expenditures. In 1968, general Government expenditures (excluding expenditures of Government enterprises) totaled 265.7 billion won, of which investments and loans made up 82.8 billion won, or 31.2%. The budget for 1969 set total expenditures at 324.3 billion won of which loans and investments comprised 94.8 billion won, or 29.3%. Since 1965, total general Government expenditures have more than tripled from 93.5 billion won, while the loan and investment components have more than quadrupled from 21.4 billion won. A major component of these large capital outlays have funded projects in agriculture, electricity production, manufacturing, and transportation.

The Korean Government's procurement agency—the Office of Supply, Republic of Korea (OSROK)—is a major importer. OSROK reported that the 1969 foreign goods and services procurement requirements of the Government, including public enterprises, totaled \$231 million. While some purchases were financed out of U.S. assistance and Japanese claims settlements, 65% were open to worldwide procurement financed with Korean Government-owned foreign exchange (KFX). Petroleum, iron and steel products, railroad equipment, machinery, telecommunications equipment, electrical equipment, testing and control equipment, and scientific instruments made up a large part of the procurement plan. Quasi-public enterprises were to absorb 55% of the required OSROK procurement and Government agencies were to consume the remainder. A listing of the major Government enterprises is to be found in the appendix.

CONSUMER PURCHASES

Private consumption expenditures in 1968 totaled 1,208.2 billion won, or 77% of GNP. Private consumption expenditures in real terms grew at an annual average rate of 6.3% during the period 1962-66, and 9.3% in 1967, and 12.3% in 1968. Private consumption expenditures per capita stood at 33,018 won in 1967. Of total consumption expenditures in 1968, 60% was accounted for by expenditures on food, beverages, and tobacco, 10% on housing, 4% on fuel and light, 11% on clothing, and 15% on various services including medical care, transportation, communications and entertainment.

A wide gap both in type and amount exists between family expenditures in rural areas and the cities. It is in the cities, especially Seoul, that the beginnings of the modern consumption economy are apparent. Increases in the housing component of consumption expenditures, for example, has resulted largely from a growing demand for such household durables as heating equipment, electrical appliances, TV sets, and plastic wares, which in turn has created a greater use of electricity, and petroleum products such as kerosene. In addition, urban families are turning to processed, packaged foods to supplement their traditional diets. These consumption trends have played a very important part in fostering the development of such industries as plastics, electric appliances, and household heating equipment.

Retailing in Korea is still comparatively unsophisti-

cated, with most consumer merchandise handled by small shops often located in arcades or bazaars. Of the six leading department stores in Korea, all essentially operate as landlords, renting space to individually owned and operated booths or departments. Attempts are being made, however, to convert these stores into true Western department stores. Consumer credit and personal banking loans are largely unknown. However, growing sales of such consumer durables as automobiles and motorcycles are bound to change this pattern, especially as the Korean-assembled Ford Cortina and Fiats begin to enter the Korean market in competition with Shinjin's Toyotas. At present, Shinjin is offering 8-month installment payment plans for its most popular sedan.

Family income reported to the Korean Tax Office as of the end of 1966 indicates the small size of the potential market for imported consumer goods from the United States. Of the 13.6 million returns, only 380,000 claimed personal income (excluding income for family business) in excess of 20,000 won per month and only 53,000 in excess of 40,000 won per month.

In addition to the small range of potential customers for imported consumer items, the Government's import policy places restrictions on the import of such items as domestic refrigerators, washing machines, air conditioners, apparel, watches and clocks, cosmetics, luggage and motorcycles. These factors limit the size of the market for U.S. consumer products.



Television sets are among the electronic products manufactured by the Korean-owned Gold Star Company.

The Competition

The substantial influx of military and economic assistance which Korea has received from the United States, together with the modernization and growth of the Korean economy, have influenced the level, composition, and pattern of Korea's trade in the 1960's. In 1960, two-thirds of Korea's total imports of \$344 million consisted of aid shipments. By 1968, Korea's situation had so improved that nearly two-thirds of the country's total imports of \$1,468 million were accounted for by commercial purchases. Korea experienced a very large quantitative leap in its imports beginning in 1966 as a result of massive inflows of capital equipment necessary for the construction of industrial projects under the Five-Year Development Plans. This new import plateau, more than any other indication, clearly reflects the transformation of the economy. Korea's ability to import in such large amounts stems in part from its increased export capacity (exports rose from \$33 million in 1960 to \$455 million in 1968, and manufactures now account for 74% of Korean exports); in part from increased inflows of foreign investment and loans; and in part from large, although decreasing, levels of economic assistance.

Korea's progress has made economic assistance a less important factor in the financing of imports, thus seriously affecting the position of the United States in

this market. In the 1960's, the U.S. share of Korea's imports declined steadily from a high of 52% in 1962 to a low of 31% in 1967 and 1968. Gradual reductions in aid shipments from the United States since 1962 account in large part for the decline in the U.S. share. In 1963, U.S. aid shipments, including PL 480 deliveries of grains, cotton and other agricultural commodities, comprised 72% of Korean imports from the United States and 37% of Korea's total global imports. By 1968, U.S. aid shipments comprised only 32% of Korean imports from the United States and 10% of Korea's total global imports. In other words, aid-financed shipments from the United States have become a less important feature of Koreans imports. And the slight gains made by the United States in the increasingly significant commercial import market financed by Korean Government-held foreign exchange (KFX) have not offset the declines in aid shipments.

This development has taken place when conditions under which Japan was able to penetrate the Korean market were markedly improved by normalization of relations between Japan and Korea. The two Governments in December 1965, reached an "Agreement Concerning the Settlement of Problems in Regard to Property and Claims Rights and Economic Co-operation." Because of the long years of Japanese occupation prior to the end of World War II, most Korean businessmen

over the age of 40 speak Japanese and are familiar with Japanese techniques and sources of supply, thus giving rise to a marked predilection for Japanese goods. In 1966, Japan supplanted the United States as Korea's principal supplier, achieving a 41% share of Korea's imports in 1966 and 43% in 1968. Japan has been able to capture a considerably larger portion of Korea's KFX imports (47% in 1968 as compared to 21% for the United States). In addition, grant aid under the Property and Claims Settlement Agreement, together with project aid and suppliers credit which make up part of the economic assistance package agreed upon at the time of normalization of relations between the two countries, have buoyed Japan's share of the market.

The second major competitor of the United States in Korea is Germany, which in 1968 supplied 5% of Korea's imports.

It is in the area of manufactures—including chemicals and machinery—that the United States meets the stiffest competition. In the crucial area of machinery and equipment, which has been the fastest growing component of Korea's imports (which rose from about 17% of the total in the early 1960's to 31% in 1967), the U.S. share of 24% was noticeably smaller than its overall position. In foodstuffs and crude materials the United States held a predominant position, accounting for 48% of Korean imports of such items, valued at \$372 million in 1967.

Local representation in the market, credit, delivery, servicing, availability of spare parts, and pricing determine the degree of market penetration achieved by each country in Korea. The U.S. performance in many of these areas falls short of the practices of other nationals engaged in selling to Korea and a brief discussion of each of those competitive elements follows.



U.S. Secretary of Commerce Maurice H. Stans (left) and Korean Minister of Commerce and Industry Chung Yum Kim (third from left) visit the U.S. Industrial Machinery Exhibition held in Seoul, sponsored by the Department of Commerce.

LOCAL REPRESENTATION

There are in Korea about eight to 10 prominent trading firms, managed by Americans or other non-Korean nationals, which have head offices in the United States. These firms handle a diversified line of products and represent primarily, but not exclusively, U.S. suppliers. In addition, a large number of U.S. manufacturers are represented by Korea offer agents or trading firms, and a handful of manufacturers maintain a sales office in Seoul. Many U.S. firms have regional headquarters in Tokyo or Hong Kong, and their representatives are able to supervise sales and potential business opportunities in Korea by frequent visits from these regional headquarters.

Much of Japanese trade with Korea is handled by the Korean branches of 24 Japanese trading firms, which include all the giant Japanese trading houses such as Mitsui, C. Itoh, Mitsubishi, and Iwai. These branches, like the American trading firms in Korea, are registered as commission or offer agents and, as such, are restricted to issuing tenders in their name only for specific products or commodities which have been authorized by their principals. The Japanese branches are generally larger than their American counterparts. In addition, a large number of Japanese manufacturers are represented by Korean offer agents

and trading firms. The proximity of the two countries makes it possible for the Japanese supplier to visit Korea frequently and to cover the market thoroughly. Moreover, Japan has entered into a large number of technical licensing agreements with Korean manufacturers under which the licensor often provides necessary raw materials, components, parts, and equipment. Of the 90 technical licensing agreements approved by the Korean Government from 1962 to late 1968, over 50 were with Japanese firms while less than half that number were with U.S. firms.

Several trading firms in Korea are managed by Europeans and represent West German, French, and British manufacturers.

CREDIT AND ECONOMIC ASSISTANCE

The low level of equity capital in many Korean firms, the resultant high debt-equity ratio, the high interest rates of 26% or higher on routine commercial bank loans and a curb rate of 4-5% per month, all make credit a very important factor in selling to Korea. An advance import deposit system, under which the deposit margin decreases with the length of payment time, accentuates the demand for purchases on



The Chungju Fertilizer Corporation has received financial help from the U.S. Agency for International Development.

credit terms. The general unwillingness of American suppliers to sell on credit, and/or to accept commercial risks unless guaranteed by a bank in Korea, are in contrast to the selling practices of Japanese and other foreign suppliers. Although a ceiling is placed on the amount that can be imported on a short-term credit basis of up to 180 days, Japan has taken up a much larger portion of this ceiling than the United States, even though shipment time from Japan is less than that from the United States.

Before extending credit, American suppliers usually prefer to secure a foreign currency guarantee from the Korea Exchange Bank, a process which requires that the Korean end-user secure from a commercial bank a guarantee denominated in won, which the commercial bank is normally only willing to grant if it holds a first or second mortgage on the firm's assets (the only sort of collateral which Korean banks will accept), and if the margin between the value of the mortgage and the firm's debts to the bank is considerable. Japanese firms are more willing to accept the local won guarantee and often extend credit on the basis of the firm's general reputation in Korea.

Of the medium and long-term foreign commercial loans with repayment periods in excess of 3 years, which have received Korean Government authorization since 1962, the most frequent interest rate has been 6-6.9%, and the most frequent repayment period 5-7 years with a 1 to 2 year grace period. Over half those credits have had no provision for down payments. In general there has been a trend toward longer grace and repayment periods and toward the introduction of down payment provisions.

In the period 1962-68, the Korean Government approved commercial loans amounting to \$912 million, with \$201 million originating in the United States, \$284 million in Japan, \$147 million in West Germany, and \$285 million in other countries. The U.S. record in extending credit has, however, been inflated by the recourse Japanese trading firms have had on the U.S. capital market for securing loans to extend to Korea. Two large loans for petroleum processing facilities accounted for 34% of the 63 U.S. commercial loan authorizations, while four projects absorbed \$128 million, or 45% of Japan's 55 commercial loan authorizations through 1968. Only two of West Germany's 34 commercial loans exceeded \$18 million; both were for thermal plants. Excluding these large projects, the average U.S. commercial loan approved by Korea has been \$2.2 million, while that from Japan has been \$3.1 million.

In general, the down payment provisions of U.S.

commercial loans have tended to be more favorable to the borrower than those of Japanese or West German commercial loans. U.S. commercial loans have seldom called for down payments in excess of 10%, while many Japanese commercial loans have provided for down payments of over 10%. Down payments on West German commercial loans have generally varied between 15 and 20%. On the other hand, the repayment terms and interest rates of U.S. commercial loans have been less favorable to the borrower than those of Japan or West Germany. A number of U.S. commercial loans have had repayment terms, including grace, of 4 years, while repayments on Japanese loans are seldom less than 5 years and generally run between 7 and 9 years. The repayment periods on West German loans tend to be as liberal as Japan's, but a higher proportion are scheduled for repayment within 5 years. While interest rates on Japanese commercial loans seldom exceed 5%, those of U.S. and West German commercial loans have tended to be higher, although rarely over 7%.

Economic assistance has had an important bearing on the position each supplier holds in the Korean market. U.S. economic and military assistance has diminished from the peak years of the late 1950's. In U.S. Fiscal Year 1958, for example, obligations and authorizations totaled \$621 million, of which \$33.1 million was military assistance, \$282 million economic grant aid, and \$7 million economic loans. In recent years military aid has stabilized around \$150 million. Economic aid for FY 1969 was estimated at \$26 million in grants, \$20 million in loans, and \$191 million in PL 480 commodities (the unusually high level of PL 480 shipments was required to make up the deficit in Korean agricultural production caused by 2 successive drought years). Aid levels in FY 1970 will be lower.

The amount of economic assistance to Korea is decreasing in line with Korea's growing ability to finance development from its own resources, and PL 480 raw materials and loans have become a much more significant part of the program for Korea. Plans are now being laid for the phasing-out of the U.S. economic assistance program to Korea.

While the U.S. assistance program to Korea is declining, that of other countries is on the increase. Under the Property and Claims Settlement Agreement with Japan, signed on December 20, 1965, Japan agreed to extend—over a 10-year period beginning in 1966—\$300 million in grants and \$200 million in official development loans, and to facilitate \$300 million in commercial credits. Since that time another



U.S. Secretary of Commerce Maurice H. Stans (second from left) and United States Ambassador to the Republic of Korea William J. Porter (third from left) receive programs to the U.S. Industrial Machinery Exhibition held in Seoul in May 1969.

\$200 million in commercial loans has been promised by the Japanese Government. For the first 3 years the Japanese Government has validated \$93.2 million in grants and \$60.9 million in loans. For 1969, the Korean Government prepared a program to make use of \$40 million in grants and \$23.4 million in loans under the Property and Claims Settlement Agreement. West Germany is reported to have extended over \$25 million in official aid to Korea.

DELIVERY

The ability to supply goods in a prompt and timely manner is a positive factor when competing in any market. Delivery schedules take on an added significance in the Korean importer's purchasing decisions because of the Government's requirement for advance import deposits and the prevailing high interest rates. Korean importers, in most instances, must deposit foreign exchange certificates, equal to or greater than the value of the goods to be imported, in non-interest bearing accounts at the time the import license is issued. The importer's capital is thus tied up for as long as it takes for the goods to arrive after the import license is issued. Even if he is able to borrow the money from a

local bank to make the advance deposit, his interest charge of about 24% per annum becomes extremely costly if delivery is in any way delayed. Under these conditions fast turnover and prompt delivery become crucial considerations to the buyer.

Japan, of course, has a very favorable advantage in respect to delivery time. Shipping transit time from Yokohama to Pusan is 24 hours and from Kobe to Pusan 18 hours, while goods shipped to Korea from the U.S. Pacific Northwest normally take about 16 days. Nonetheless, shipping service between both East and West coasts of the United States to Korea is relatively frequent with nine American conference lines serving the trade. While little can be done to reduce transit time direct from the United States, the possibilities of maintaining stocks of rapid-turnover goods will undoubtedly be given more serious consideration in the future as will other methods designed to combat Japan's competitive advantage of close proximity. At present, only a few agents for U.S. firms in Korea stock equipment, and this is primarily in the instruments and office equipment field.

The first bonded warehouse operation, under which complete sets of construction and mining equipment are inventoried, came into service in 1969. Other

U.S. suppliers may follow suit if this undertaking proves to be successful.

In view of the above, American suppliers should make every effort to handle import orders from Korea on a priority basis to speed up delivery as much as possible.

SERVICING

In the lean years following the Korean conflict, when foreign exchange was exceedingly scarce and imports were kept to a minimum, owners of machinery learned to rely on their own resources or that of the many small machine shops to repair machinery. Equipment parts were often replaced by locally tooled spares. This tradition still carries on, but with heavy competition among foreign suppliers in the Korean market, servicing has become a more important part of selling.

Japan's closeness to Korea allows Japanese manufacturers to send teams of specialists to offer skilled advice in installation, maintenance and repair at little cost. Some agents for U.S. firms do have on tap maintenance personnel familiar with the equipment being sold, and recently some emphasis has been given to

training such personnel in formal programs at U.S. companies.

PRICING

U.S. goods have a reputation among Korean buyers for quality and performance; yet Koreans tend to be very price conscious and often regard the U.S. label as too expensive. Two important factors help to explain the price consciousness of Korean customers. First, the general shortage of funds has resulted in very high local interest rates which favor the smallest possible outlay of capital. Second, in an export-oriented economy where final products must be able to meet keen competition in the world market, many local manufacturers feel that it is essential to buy raw materials and equipment from the cheapest source. Under these conditions, Japanese and other goods are frequently held to be a better buy, even though it is widely recognized that their durability often does not compare with those made in the United States.

Faced with this necessity of meeting price competition, U.S. exporters might consider: (1) adapting their products for the Korean market by stripping them



President of the Republic of Korea Chung Hee Park (center), and United States Ambassador Porter (on the right), open the U.S. Industrial Machinery Exhibition.

down to the basic production unit; (2) taking into account in their price quotations, as many Japanese competitors do, the repeat business generated by the demand for spare parts and components, or auxiliary equipment; (3) emphasizing and selling the idea that

the superior quality of U.S. products ultimately results in lower production costs; and (4) investigating possible warehousing arrangements in Korea that would allow larger shipments and cheaper freight rates for the trans-Pacific haul.

The Market for Specific Products

This chapter is divided into 18 sections, each briefly describing the market for a particular product line. The product lines selected are believed to present the most favorable prospects for U.S. sales. The narrative covers such factors as the extent of domestic production of the items under discussion, developments

in the industry or service using the equipment or raw materials, distribution channels, and the import licensing procedures and customs duty applicable to the import into Korea of such items. The tables which precede each narrative have been compiled from Korean Customs statistics.

Korean Imports of Hides and Skins, 1964, 1967-68

(Thousands of U.S. dollars)

	Total			U.S.			Principal Suppliers
	1964	1967	1968	1964	1967	1968	
Bovine and equine hides	216	1,202	2,084	206	1,080	1,798	U.S., Canada
Calf skins	•	5	23	•	5	23	U.S.
Goat skins	•	21	2	•	21	2	U.S.
Sheep skins with wool	•	53	2	•	0	0	Australia
Sheep skins without wool	•	2	8	•	0	0	Australia
Waste of leather	21	0	1	0	0	1	U.S.
Other hides and skins	•	0	19	•	0	10	U.S., Japan
TOTAL	237	1,283	2,139	206	1,106	1,834	

*Data not available; thus imports assumed to be minimal.
Source: Customs Bureau, Korean Ministry of Finance.

HIDES AND SKINS

Korea's stock of draft cattle is the chief source of hides and skins for its leather industry. Draft cattle numbered 1,244,800 head in 1967. Of these, some 291,000 were slaughtered in 1967, and an equal number of bovine hides were supplied to the domestic leather industry. Since 1962 production of cattle hides has fluctuated from 130,000 pieces to a peak of 329,000 pieces in 1964, declining to 267,000 in 1966. Korea hoped to reach an output of 363,000 pieces in 1969. To date domestic sources have not been sufficient to meet local demand, nor have they been able to provide the quality desired, especially for the leather items manufactured for export.

As of 1966, there were 45 tanneries and leather finishing plants with a total employment of 2,247. Of these about five are large-scale, mostly located near Seoul. Many small-scale tanneries have been forced to end their operations or merge with others because of general over-capacity.

Chrome uppers account for some three-quarters of the output of Korean tanneries, while tanned uppers, soles, and industrial leather account for the remainder. These items are supplied to the domestic industry, which has the capacity to produce 2.6 million pairs of combat boots, 780,000 pairs of dress shoes, 1.3 million baseball gloves, 237,000 dozen work gloves, and 72,000

handbags per year. The shoe and boot industry is attempting to mechanize its operations, and many of the shoes produced are rubber-soled.

The growth in Korean exports of leather goods, especially combat boots, baseball gloves, and work gloves, coupled with the increasing affluence of the Korean consumer, makes the outlook for sales of hides and skins favorable. In the past, imports have been almost exclusively from the United States, the major shipments consisting of bovine hides weighing between 54–56 pounds with some in the 70–78 pound range. In addition, a large number of bull hides have been imported. The quantity of skins imported has been small and this trend is likely to continue. The domestic shoe industry has been turning toward artificial leather products for dress shoe manufacture, and the market for such goods, especially remnants or piece goods, is expanding.

Most hides are sold directly to the tanneries through offer agents. Sales are usually made on an L/C basis, but D/A or D/P terms have been given from time to time.

The customs duty on raw hides and skins is 25%, except for calf skin on which the duty is 30%. A duty of 60% is assessed on imported leather. Under Korea's import license system, hides and skins are automatic approval items.

Korean Imports of Sawlogs and Lumber, 1964, 1967-68

(Thousands of U.S. dollars)

	Total			U.S.			Principal Suppliers
	1964	1967	1968	1964	1967	1968	
Coniferous sawlogs and veneer logs	7,055	8,238	12,624	5,513	5,316	9,130	U.S., New Zealand
Non-coniferous sawlogs and veneer logs	10,622	47,986	73,973	97	115	545	Malaysia, Philippines
Pitprops	*	0	2	*	0	0	Japan
Poles, piling, other wood in the rough	*	398	609	*	270	0	Philippines, Borneo
Railway sleepers	139	1,269	2,109	8	2	1	Singapore, Malaysia
Coniferous lumber	150	162	77	114	22	10	Japan, U.S.
Non-coniferous lumber	*	372	252	*	154	22	Japan, Hong Kong
TOTAL	17,966	58,425	89,646	5,732	5,879	9,708	

*Data not available; imports thus assumed to be minimal.

Source: Customs Bureau, Korean Ministry of Finance.

LOGS AND LUMBER

Despite a Government reforestation program, Korea's forest resources are limited. Forest plantings are being undertaken to control soil erosion and to provide fuel for rural areas as well as to build up future timber reserves. For the foreseeable future, however, local forests will be unable to meet the demand for lumber, and

Korea will continue to import substantial quantities of logs.

Korea produced 761,000 cubic meters of timber from domestic sources in 1966, about half of the country's total lumber needs. Korean imports of logs fall into two types—tropical woods for the large veneer and plywood industry, and saw logs which are con-

verted into lumber to be used in general construction. U.S. sales of logs are, and will continue to be, almost exclusively confined to the latter category.

There are some 800 sawmills in Korea, with a combined labor force of 7,000; only 45 saw mills employ more than 20 workers. Most logs (excluding lauan logs imported for the plywood industry) are imported in rough form, as can be seen from the above table, and are sold directly to lumberyards and sawmills. The construction industry is the major consumer of lumber in Korea, although a small portion is used in the furniture industry. The construction industry has been extremely active in Korea (see section on Construction in Chapter I), and the demand for construction materials including lumber will maintain its growth.

The United States has been Korea's chief source of coniferous saw logs (mostly hemlock), although there is some competition from New Zealand pine. The United States is also a source of Korea's imports of lumber; however, a variety of squared logs and lumber are reaching Korea from Japan. Because of the diffi-

culties in obtaining shipping and financing from the United States, at least one major log importer is placing orders for logs from the United States through a Japanese trading firm. Sammisa Company is the largest importer of logs in Korea; the company supplies logs to a subsidiary saw mill, the products of which are distributed throughout the country.

Logs are generally imported on D/A terms. Under the import license system, logs and lumber are automatic approval items. Customs duties on logs and lumber depend on the degree of processing the logs have undergone. Saw logs and veneer logs in the rough, roughly squared, or half-squared are subject to a 10% duty, except for pit props which enter Korea free of duty and logs of certain tropical species, which are subject to a 25% rate. The duty on wood sawn lengthwise, sliced or peeled, of a thickness exceeding 5 mm., is 25% for all species except for certain non-coniferous, tropical varieties which carry a duty of 40%. Railway sleepers carry a duty of 10%.



Tongmyong Plywood Company in Pusan, one of the world's largest producers of plywood, exports in substantial quantities.

Korean Imports of Pulp, 1964, 1967-68

(Thousands of U.S. dollars)

	Total			U.S.			Principal Suppliers
	1964	1967	1968	1964	1967	1968	
Waste and scrap, of paper	1,152	980	936	273	721	812	U.S., Japan
Mechanical wood pulp	574	1,454	1,704	10	380	506	U.S., Sweden
Non-wood pulp	224	293	855	7	196	490	U.S., Japan
Chemical wood pulp, dissolving grades	*	116	914	*	109	744	U.S., Japan
Unbleached sulphate wood pulp	2,118	3,559	5,978	2,105	3,533	5,842	U.S., Hong Kong
Semi-bleached kraft pulp	1,280	2,554	4,005	1,147	2,554	4,005	U.S.
Bleached sulphate wood pulp	995	3,184	4,588	845	2,698	3,761	U.S., Panama
Unbleached sulphite wood pulp	111	186	10	111	186	10	U.S.
Bleached sulphite wood pulp	2,946	4,271	6,701	2,724	4,145	6,677	U.S., Panama
Semi-chemical wood pulp	*	*	2	*	*	2	U.S.
TOTAL	9,400	16,597	25,693	7,222	14,522	22,849	

*Data not available; imports thus assumed to be minimal.

Source: Customs Bureau, Korean Ministry of Finance.

PULP

A shortage of forest resources has prevented Korea from developing a pulp industry of any size. That which exists is reported to have an annual production capacity of 40,140 tons of ground pulp, 6,000 tons of de-inking pulp, and 7,500 tons of semichemical pulp. The ground pulp manufacturing facilities are associated with three newsprint plants and a printing plant. The domestic pulp industry, however, is operating at well below capacity levels because of the lack of domestic timber, while imports of wood pulp reached 54,000 tons in 1965, 95,000 tons in 1966, 103,000 tons in 1967, and 145,000 tons in 1968. The possibility of manufacturing chemical wood pulp from straw or other locally available materials is being explored, as is the feasibility of establishing a wood pulp plant to process imported wood chips into chemical pulp.

In line with the projected growth of the paper industry, future demand for wood pulp is expected to increase at high rates. Some pulp is also sold to the local rayon industry, the Heung Han Viscose Rayon Company, and the Sunkung Chemical Fiber Company. As of the end of 1966, there were 48 establishments in the paper industry employing 14,512 workers. Of this total, 215 plants manufactured Korean style papers, and 164 were making finished paper products. The principal products of the Korean paper industry are newsprint, kraft paper, paperboard, wood free paper, and printing paper.

The main newsprint makers are the Sampung Paper Manufacturing Company, the Daehan Paper Manufacturing Company, and the Korea Paper Manufacturing Company, with a combined annual production capacity

of 64,000 tons in 1967. Annual capacity for kraft paper was 33,500 tons in 1967, while that for printing paper was 51,500 tons. Plants manufacturing manila board, corrugated body board, liner board, tissue paper, and one-sided printing paper are relatively small-scale and have a combined annual capacity of some 84,000 tons.

Korean paper mills are operating at nearly full capacity, and several new plants are to be established under the Second Five-Year Plan which projects output in 1971 will reach 90,000 tons of newsprint and 63,000 metric tons of kraft paper. Demand for paper, and consequently for pulp, is propelled by the increased use of paper for packaging to replace such traditional materials as straw and bamboo, and to the extensive reading habits of the Korean populace.

In imports there has been a trend over the past several years toward consumption of bleached sulphate pulps as opposed to bleached sulphites. Since pulp imports have been AID-financed for the last several years, pulp has been almost exclusively imported from the United States. The Supporting Assistance program under which such raw materials are supplied to Korea is coming to an end, however, and the funding for such imports will have to come from Korea's own foreign exchange resources. In 1969, all pulp, except ground wood pulp, was removed from the eligible list for Supporting Assistance finance. U.S. suppliers will now have to meet heavy competition from Canadian and Scandinavian sources.

Under past arrangements, pulp was shipped to Korea from the United States and stocked in those bonded storage areas approved by AID. The supplier, usually represented in Korea by an offer agent, released these stocks if his offer—in response to the open bidding

procedures established by AID—was acceptable, and after the domestic end-user had opened an L/C. Now that Supporting Assistance financing is no longer available for importation of pulp (except for ground wood pulp), Korean end-users will seek arrangements giving them assurance of continuous and immediate supplies.

Such assurances might be provided by long-term contracts or by continuing to stock pulp in Korea, with pulp being shipped on 60–90 day terms.

Mechanical wood pulp enters Korea free of duty, while other pulps are subject to a 10% duty. Under the import licensing system, pulp is an automatic approval item.

Korean Imports of Pharmaceutical Products and Medical Equipment, 1964, 1967-68

(Thousands of U.S. dollars)

	Total			U.S.			Principal Suppliers
	1964	1967	1968	1964	1967	1968	
Vitamins and provitamins	298	462	537	200	223	155	U.S., Japan
Antibiotics	1,140	2,715	4,383	294	124	193	West Germany, Netherlands
Vegetable alkaloids and their derivatives	144	287	332	65	4	4	West Germany, Japan
Hormones	92	649	1,136	57	6	8	West Germany, Italy
Glycosides, glands, sera	312	338	783	240	194	387	U.K., U.S.
Medicaments	1,691	2,981	4,535	754	1,341	1,320	Japan, U.S.
Pharmaceutical goods	106	90	127	59	35	58	Japan, U.S.
Electro-medical apparatus	40	217	294	12	114	65	Japan, U.S.
X-ray and radiological apparatus	231	492	617	132	122	231	Japan, U.S.
Medical instruments	162	332	881	61	166	208	Japan, U.S.
Mechano-therapy appliances	19	115	113	17	79	37	Japan, U.S.
Medical furniture	69	64	104	31	41	38	Japan, U.S.
TOTAL	4,304	8,742	13,842	1,922	2,449	2,704	

Source: Customs Bureau, Korean Ministry of Finance.

PHARMACEUTICAL PRODUCTS AND MEDICAL EQUIPMENT

The modern sector of the Korean pharmaceutical industry is primarily engaged in the granulating, mixing, tableting, coating, packaging, and labeling of bulk drugs and intermediates imported from various U.S., Japanese, and European firms of which the Korean firm is a licensee. Of a total of over 400 firms in the pharmaceutical business, some 300 manufacture drugs; 60, cosmetics; 16, medical instruments; 11, surgical dressings and medical supplies; and 16, quasi-drugs. The output of the drug industry was valued in excess of 12.5 million won in 1967, the leading producers (accounting for well over half of the value of production) being the Dong-A Pharmaceutical Company, the Yuhan Corporation, Central Pharmaceutical Company, Han-Dok Remedia Industrial Company, Chong Kun Dang Pharmaceutical Company, Hanil Pharmaceutical Industrial Company, and Yung Jin Pharmaceutical Industrial Company.

The chief items produced in 1967 were antibiotics; digestive organ drugs; nutritional supplements, tonics, and alteratives; central nervous system drugs; hormones; chemotherapeutics; and vitamins. Thirteen in-

gredients used in the manufacture of drugs are produced domestically: oxytetracycline, chloraphenical, PAS-calcium, INAH, nicotinanicle, glucurono lactone, thiamin, dry yeast, phenacetin, carbarsone, acetanilid, aspirin, and DL-methionine.

In addition to drugs, Korea manufactures such medical supplies and equipment as bandages, sterilizers, incubators, some X-ray equipment, hospital furniture, and small surgical instruments.

As in many developing countries, medical care in Korea is inadequate to cope with the health problems arising from years of neglect. Nevertheless, substantial progress has been made. The average life span for males has increased from 51.1 years in 1957 to 59.9 years in 1967, and for females from 53.8 years to 66.6 years. Among the health problems facing Korea are a 5.1% prevalence rate of tuberculosis, parasite health problems estimated to afflict 95% of the population, a high infant mortality rate of 58.2 per 1,000 births, and an incidence of typhoid fever, encephalitis, and diphtheria which reached 7,973 cases in 1967.

Medical care is provided by a network of 13 State-run hospitals, 46 provincial hospitals, 191 health centers, and 1,341 health sub-centers. In addition, there are 156 private hospitals, a number of which are either

associated with universities or missionary establishments and which are the best equipped in Korea. Registered physicians number 12,269, or 4.1 per 10,000 population. As part of the Second Five-Year Plan, 10 new provincial and city hospitals are to be built, and the existing ones are to undergo remodeling. However, with the exception of family planning programs and epidemic prevention measures through inoculation programs, health care has not received a high priority in the Government's development plans thus far. In the 1968 Government budget, 2.3 billion won was set aside for health, 717 million of which is to cover expenditures by Government hospitals.

Effective drug promotion and advertising campaigns have made Koreans more aware of health and medical care. This, coupled with growing affluence and education, should ensure a growing market for pharmaceuticals. Many Korean doctors are American-trained, and hence familiar with U.S. drugs and medical equipment. The hospitals, especially those that are privately owned, and medical schools are seeking the newest equipment including patient monitoring systems, and other devices incorporating the latest in medical technology. Many hospitals are also replacing their old facilities with new X-ray equipment, sterilizers, and other hospital equipment.

As mentioned previously, most imported pharmaceuticals are sold to Korean pharmaceutical firms for repackaging. These, in turn, are sold directly to medical installations or sold to the consumer through the nation's 6,994 licensed retail pharmacies and 5,115 other outlets, including drug peddlers authorized to handle sales of certain packaged drugs. Some 10% of the items sold in retail pharmacies are imported while the re-

mainder have undergone at least some processing in Korea.

Imported medical equipment is generally sold through offer agents who handle sales to Government hospitals through OSROK as well as to private consumers. Some stocking of medical equipment in heavy demand is done by offer agents at their own cost. Medical equipment is normally imported on an L/C basis, while the terms for pharmaceuticals normally depend upon the arrangements worked out between the licensor and his licensee in Korea.

The importation of pharmaceuticals and some medical supplies and equipment is subject to special procedures outlined in the Pharmaceutical Law and related regulations. A license for the importation of pharmaceuticals and certain medical equipment is required from the Ministry of Public Health and Social Affairs. In addition, for drug items not previously imported into Korea, approval for import must be given by the Ministry. Before customs clearance, antibiotics, biologically compounded drugs, and drugs whose use cause habituation or toxicosis are subject to inspection by the Public Health authorities. Licenses for the import of finished pharmaceuticals identical to those produced domestically are not granted. Import licenses are readily issued for raw material and intermediates used in the manufacture of pharmaceuticals by firms which are licensees of foreign producers. A 20% customs duty is assessed on imports of vitamins, hormones, enzymes, antibiotics (50% if for retail sale), and suture materials. Antisera enter Korea free of duty, while surgical dressings are subject to a 70% duty. Medical instruments including orthopedic appliances are subject to a 20% duty.

Korean Imports of Internal Combustion Engines, 1964, 1967-68

(Thousands of U.S. dollars)

	Total			U.S.			Principal Suppliers
	1964	1967	1968	1964	1967	1968	
Locomotive engines	•	•	68	•	•	11	Japan, U.S.
Marine engines	107	1,399	1,946	2	7	458	Japan, U.S.
Diesel, horizontal or single cylinder, and glow plug engines	57	1,528	583	30	17	9	Japan, U.S.
Gasoline engines	398	362	881	32	49	35	Japan, U.S.
Other internal combustion engines	1,383	2,552	4,316	1	137	18	Japan, U.K.
Engine parts	408	1,377	2,231	278	292	238	Japan, U.K.
TOTAL	2,353	7,218	10,025	343	502	769	

*Data not available; imports thus assumed to be minimal.
Source: Customs Bureau, Korean Ministry of Finance.

INTERNAL COMBUSTION ENGINES

Although an estimated 100 plants are reported to manufacture engines and parts, three firms dominate the domestic production of internal combustion engines—Dae Dong Industrial Company, Jinil Machine Industrial Company, and Hankuk Machine Industrial Company. Over 14,827 engines were produced in 1968, slightly less than the peak production of 15,313 in 1965. Engines used in conjunction with such agricultural equipment as power tillers, sprayers, and pumps account for the largest portion of production. In addition, vehicular and marine diesel engines are also being manufactured and assembled, primarily under technical licensing agreements with Japanese firms. Marine engines with an output of up to 225 h.p. are being produced. In one company, over four-fifths of the parts of marine diesel engines under 60 h.p. are manufactured locally, although on the average the local content of vehicular engines, including automobile and marine diesel, is much lower.

The establishment of an automobile assembling industry encompassing three firms tied to Toyota, Ford, and Fiat has already spurred the development of an

industry engaged in producing automobile engine parts. Demands for a higher local content in domestically assembled automobiles will add to the development of the engine industry.

At present, the United States can fill certain of Korea's needs in the internal combustion engine field. While stationary engines for pumps are made in great numbers in Korea, small portable engines for pumps are not, and favorable opportunities exist for U.S. sales in this area. Diesel engines for power generation are also imported in sizable quantities. The United States still faces competition from other foreign suppliers in selling such equipment, but the United States is generally acknowledged to be competitive in the over-1200-RPM range. In addition, a sizable volume of engine parts is shipped from the United States to Korea, mostly to maintain those engines already in use in Korea.

Representation through an offer agent handling general industrial machinery appears to be the most common method of selling engines to Korea. Some offer agents stock small quantities of essential and high turn-over parts at their own expense.

The basic rate of duty on internal combustion engines is 50%; however, horizontal or single cylinder



Visitors to the U.S. Industrial Machinery Exhibition in Seoul inspect an all-terrain, multiple-purpose vehicle. A large number were sold during and after the show.

diesel or heavy oil and glow plug engines are subject to a 70% customs duty, while ship engines exceeding 746 kw in power enter Korea free of duty and those with a

rating between 90 kw and 746 kw are subject to a 20% duty. Internal combustion engines are automatic approval items under Korea's import licensing system.

Korean Imports of Office Machinery, 1964, 1967-68

(Thousands of U.S. dollars)

	Total			U.S.			Principal Suppliers
	1964	1967	1968	1964	1967	1968	
Typewriters and parts	25	444	415	11	167	126	U.S., West Germany
Check-writing machines and parts	*	58	126	*	38	98	U.S., Japan
Calculating, accounting, and similar machines with calculating devices and parts	50	1,414	4,133	19	544	3,736	U.S., Japan
Statistical machines and parts	*	43	272	*	11	9	Japan, Canada
Duplicating machines	14	13	41	7	5	6	West Germany, Japan
Other office machines	*	62	50	*	10	21	Japan, U.S.
Miscellaneous parts	*	5	0	*	2	0	
Contact type photo-copying apparatus and parts	*	49	168	*	9	60	Japan, U.S.
TOTAL	89	2,088	5,205	37	786	4,056	

*Data not available; thus imports assumed to be minimal.

Source: Customs Bureau, Korean Ministry of Finance.

OFFICE MACHINERY

Although some office machinery, including typewriters, duplicators, and mimeograph machines, are manufactured in Korea, output is limited, and the plants are small-scale. Thus nearly all of Korea's office equipment must be imported.

The potential for sales of office equipment is large, yet to tap this market it is necessary to educate the potential customer in the importance of maintaining meaningful records. At present many transactions or operations are initiated and implemented through personal contact rather than through written communications, thus limiting the dissemination of information and hindering the possibilities of review of past actions and results. These problems have been aggravated by growth in the manufacturing sector which has resulted in the emergence of larger corporations and service organizations, with consequently larger potential needs for office equipment.

A number of banks and Government ministries are purchasing computers, and eight electronic data processing facilities are now installed. These include computers operated by the Economic Planning Board, the Korean Army, the Korean Computer Center, and the Ministry of Health and Social Affairs. Ten other organizations are considering the introduction of data processing equipment, including the Bank of Korea, the

Korean National Railroad, the Korea Electric Company, Gold Star Company, the Korean Reconstruction Bank (KRB),¹ Korean Institute of Science and Technology, and the Office of National Taxation.

Office equipment sales are normally handled by offer agents selling directly to end-users or to retail sales outlets. Stocks of high-turnover office equipment and parts are maintained, some in bonded storage areas. In addition, distributors normally offer some sort of service facilities.

Under Korea's import licensing system, auto-copying machines for office use (excluding those electronically operated), perforating machines for office use, and punching machines for office use (except statistical and punching machines) are import-restricted items, and other office equipment falls under the automatic approval category. Electronic calculators are subject to a 5% custom duty, and most other office equipment, including parts and accessories, are subject to a 20% customs duty. Exceptions are check-writing machines, 70%; certain duplicating machines, 70%; small electrically operated calculating and accounting machines, 70%; and manually operated typewriters, 50%.

¹ On September 1, 1969, the name of the KRB was changed to the Korean Development Bank (KDB).

Korean Imports of Machine Tools and Metalworking Machinery, 1964, 1967-68

(Thousands of U.S. dollars)

	Total			U.S.			Principal Suppliers
	1964	1967	1968	1964	1967	1968	
Lathes, planers, shaping and slotting machines	386	1,135	5,094	113	143	84	Japan, West Germany
Boring, broaching, drilling, reaming, and tapping machines	189	1,011	1,098	50	70	29	Japan, West Germany
Milling and die sinking machines	199	988	718	66	104	67	Japan, West Germany
Gear cutting and shaving machines	33	437	194	0	11	38	Japan, U.S.
Sawing and filing machines	37	78	118	33	8	17	Japan, West Germany
Grinding, honing, lapping and finishing machines	301	1,352	2,650	120	133	101	Japan, West Germany
Other machine tools	170	—	429	150	—	82	Japan, West Germany
Bending machines	•	75	91	•	0	0	Japan, West Germany
Pressing machines	97	497	1,347	33	233	327	Japan, U.S.
Shearing machines	12	322	217	10	5	3	Japan, West Germany
Forging machines	•	66	158	•	0	49	Japan, U.S.
Other machine tools for working metal	203	1,041	733	2	231	26	Japan, West Germany
Converters, ladles, ingot moulds	•	25	158	•	0	71	U.S., West Germany
Metal casting machines	•	126	437	•	0	21	Japan, West Germany
Rolling mills and rolls	357	829	953	12	0	3	West Germany, Japan
Gas operated welding, cutting appliances and parts	44	44	339	2	7	100	Japan, U.S.
Electric furnaces, induction and dielectric heating equipment and parts	226	721	2,342	185	274	638	Japan, U.S.
Electric welding and cutting apparatus and parts	126	519	1,103	21	127	165	Japan, U.S.
TOTAL	2,380	9,266	18,179	797	1,346	1,821	

*Data not available; thus imports assumed to be minimal.

Source: Customs Bureau, Korean Ministry of Finance.

MACHINE TOOLS AND METALWORKING MACHINERY

While Korea does not have a machine tool industry, as such, a sizeable number of machine shops connected with plants producing such industrial machinery as textile machinery have the capability of producing made-to-order machine tools. The largest producer of machine tools is the Korea Shipbuilding and Engineering Corporation. Drilling machines and lathes account for nearly all domestic machine tool production.

The Korean Government is attempting to promote the development of the local machinery industry, particularly the production of engines, automobile parts, railway rolling stock, textile machinery, agricultural machinery, heavy electrical equipment, valves and pipe fittings, and communications equipment. In addition to preferential loans to be extended by the Ministry of Commerce and Industry, the total amount tentatively set is 2.4 billion won in 1969 to be increased to 10 billion won in 1970, import protection is to be extended to industries manufacturing such machinery items. Opportunities for sales of U.S. machine tools are expected to develop from these plans. For example, in

response to the Korean Government's desire to increase the local content of domestically assembled automobiles to some 35% in 1969, orders are being placed for machine tools for the manufacture of automobile parts.

Much of Korea's past imports of machine tools have been in the general purpose category in which U.S. suppliers find it difficult to compete with Japanese and West German suppliers. While demand for such machine tools will continue to be strong, Korean end-users are expressing interest in precision tools, special purpose, and automatic machine tools.

Most sales of machine tools are handled through offer agents. Machine tools are automatic approval items under Korea's import licensing system and are subject to duties ranging from 10 to 20%.

The Korean metal industry is closely allied to the domestic machinery industry. Developments in the metal industry promise to improve the supply of raw materials to the machinery industry, thus improving the prospects for its growth and contributing to the demand for both machine tools and metalworking equipment.

In the field of metalworking equipment, heavy equipment for the making and rolling of iron and steel and

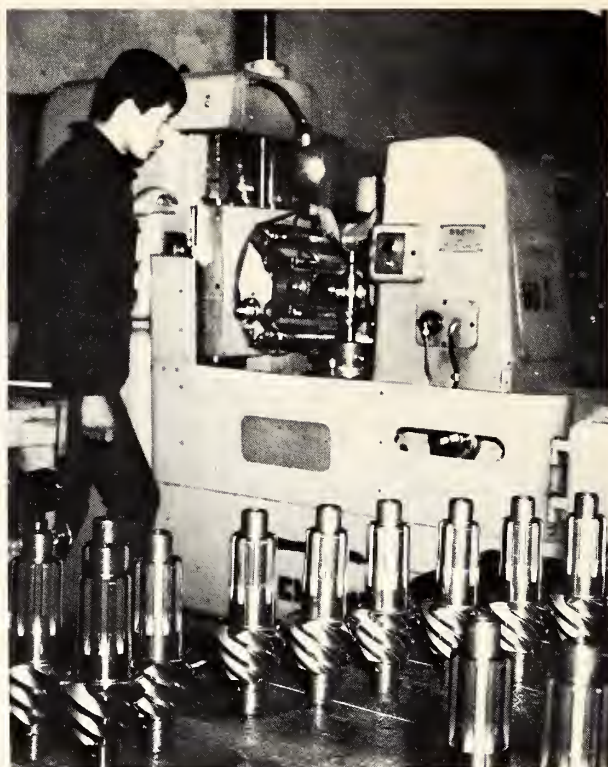
non-ferrous metals is primarily imported. Some pressing machines are manufactured locally as is certain welding equipment.

Although the Korean iron and steel industry has developed rapidly over the past few years, present facilities are insufficient to satisfy domestic demand which has been growing by more than 20% annually. In 1968, the production of various iron and steel products, in thousand metric tons, was pig iron, 50; steel ingots and billets, 425; hot rolled sheet, 15; plate, 60; cold rolled sheet, 70; galvanized sheet, 40; and tin plate, 7. To satisfy domestic demand for iron and steel, Korea imported 668,000 tons of iron and steel products and 391,000 tons of iron and steel scrap in 1968.

The principal producers include Korea Iron and Steel Company, Inchon Heavy Industry (both producing hot rolled steel products), and Union Steel Company and Ilssin Steel Company (both producing cold rolled steel products). In addition, there is a substantial number of small hot bar mills, a feature of the iron and steel industry which reflects the fact that reinforcing bars for the construction industry occupy the largest part of iron and steel production. Dong Kuk Steel Company possesses the only continuous bar rolling mill in Korea, with an annual capacity of 60,000 tons. Much of the rolling equipment used in the large mills is of West German or Japanese origin. A few of the large mills are beginning to produce welded I beams for the construction industry, thus giving rise to sales opportunities for automatic welding equipment.

Iron and steel casting facilities numbered over 70 at the end of 1966. The largest are the Pusan Iron Works and Hankuk Machine Industrial Company, both engaged in producing railway car parts. Production of general iron castings was expected to reach 60,000 tons in 1967. Half a dozen plants specialize in making special high alloy castings, production of which reached 746 tons in 1967. In order to further the development of Korean foundries, the Ministry of Commerce and Industry plans to loan \$3 million in foreign exchange and 500 million won beginning in 1969 for expanding and equipping Korean casting facilities. As a consequence, opportunities for sales of U.S. sand-treating machinery and moulding machines are favorable.

Demand for pipe for general construction and for building the petrochemical and other chemical complexes is expected to result in expansion of Korean pipe-making facilities, which at present have an annual production capacity of 22,000 tons of cast iron pipe, 10,000 tons of large diameter steel pipe, and 100,000 tons of small diameter steel and conduit pipes. The principal firms in this sector are the Pusan Cast Iron

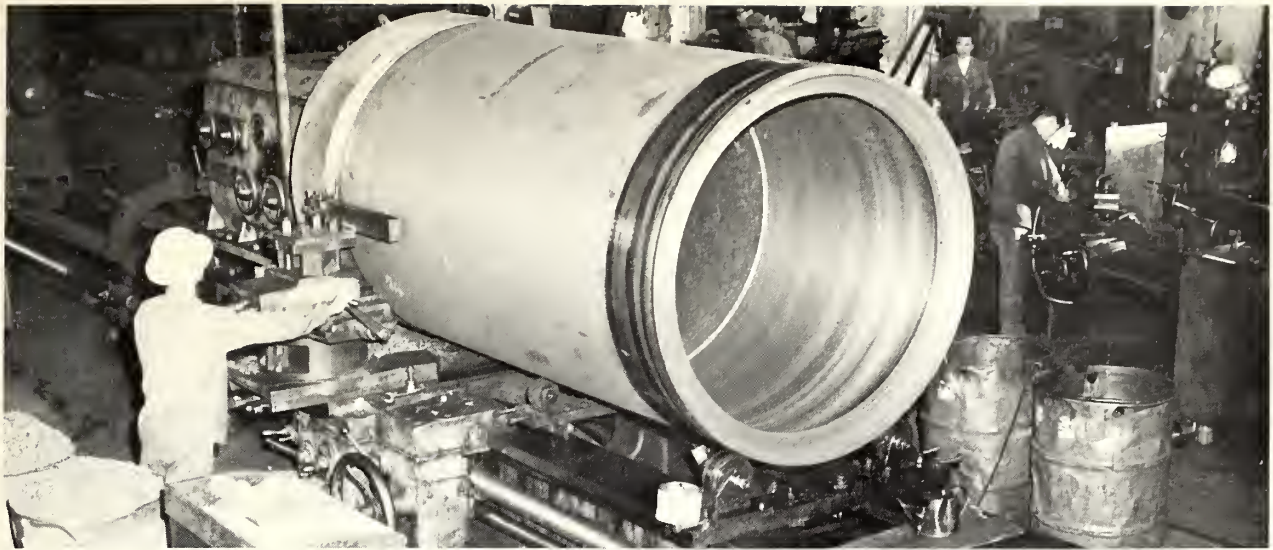


The Hankuk Machine Industrial Company at Inchon is one of the larger Korean firms in the machinery business. Development of this industry is encouraged by the Korean Government.

Pipe Company, the Kyungsung Iron Works, the Ilssin Pipe Company, and Pusan Steel Pipe Company. In connection with expansion plans, companies are interested in high frequency welding equipment.

The wire-drawing sector increased its production to 24,000 tons in 1967. Four firms, including Korea Sangsa Company and Boo Kook Steel and Wire Company, account for most of the industry's capacity.

In the nonferrous sector, there are some 20 rolling mills, each with a capacity of about 200 tons a year, as well as the Han Yung Aluminum Industrial Company with an annual aluminum plate rolling capacity of 5,000 tons and Ilssung Industrial Company with an annual capacity of 2,000 tons. The erection of a planned 15,000-ton aluminum refinery should foster further growth in the nonferrous sector and generate new demands for metalworking equipment. Aluminum is currently processed into plates for railway cars, household goods, wire, and construction materials. The Tongyang Steel Company, the Bokwang Industrial Company, and the newly established Namsun Chung Kum Sok Company possess the only aluminum extrusion facilities. Nonferrous casting plants are numerous and typically very small.



Metalworking equipment of the Inchon Heavy Industry Company is being employed in picture above.

Imports of metalworking equipment have been increasing in recent years, but U.S. suppliers must be ready to meet stiff Japanese and West German competition. In addition to equipment for the casting industry and welding equipment, prospects are good for sales of bending and pressing machinery for the automobile parts and home appliance industries. Metalworking equipment is normally handled by offer agents in the machine tool and general industrial equipment field. Apart from gas-operated brazing appliances, blow

torches, acetylene torches, and welding equipment which are all restricted import items, metalworking equipment falls into the automatic approval category. Converters and parts enter Korea free of duty, while casting equipment and ingot molds are subject to a 10% duty. A 10% duty is assessed on imports of rolling mills including rolls, while other parts of rolling mills are subject to a 20% duty. Gas-operated welding and cutting equipment are subject to a 70% duty.

Korean Imports of Construction and Mining Equipment, 1964, 1967-68

(Thousands of U.S. dollars)

	Total			U.S.			Principal Suppliers
	1964	1967	1968	1964	1967	1968	
Mechanically propelled road rollers and parts	•	13	906	•	12	37	Sweden, Japan
Excavators and dredging equipment and parts	63	169	1,050	21	28	382	Japan, U.S.
Coal cutters and parts	•	0	4	•	0	0	West Germany
Other excavating, leveling, boring machinery and parts ¹	0	2,690	27,899	0	1,003	23,050	U.S., Japan
Mineral sorting, crushing, mixing, moulding machinery and parts	1,713	2,950	4,373	675	500	1,260	Japan, U.S.
Pneumatic and other mechanical hand tools for use in construction and mining	120	395	1,177	1	67	37	Japan, Sweden
Electro-mechanical hand tools for use in construction and mining	•	10	6	•	4	1	Japan, U.S.
TOTAL	1,896	6,227	35,415	697	1,614	24,767	

*Data not available; thus imports assumed to be minimal.

¹ In 1968, bulldozers accounted for \$13,433,000 of total imports and \$12,126,000 of imports from the U.S.

Source: Customs Bureau, Korean Ministry of Finance.

CONSTRUCTION AND MINING EQUIPMENT

Domestic production of construction and mining equipment is limited to certain types of mining equipment, including crushers, simpler compressors, pumps, conveyor belts, and briquette-making machines.

As mentioned in the mining section in Chapter I, exploitation of newly discovered iron ore reserves, together with the development of an iron ore dressing facility at Hongchon and a zinc smelter on the East coast by Young Poong Mining Company, are among the projects to be undertaken in the near future.

Koreans have a built-in predilection for U.S. mining equipment since the country's needs in the past have been largely met by sales of U.S. Government excess property equipment. Indeed, a large stock of mining equipment is held by the Korea Mining Development Corporation in the Ministry of Commerce and Industry which leases machinery for the exploration and development of mines. In 1969, this Corporation was allocated a budget of \$150,000 to buy spare parts. Prior to the large influx of construction equipment imported in conjunction with Korea's highway construction program, this mining equipment pool was estimated to account for almost a quarter of all the mining and construction equipment in Korea.

Since deep-shaft mining characterizes nearly all of Korean mining operations, equipment needs include battery locomotives, rock drills, heavy duty reciprocity air compressors, and various hoists. In addition, Korea represents a good market for ore dressing, beneficiation and flotation equipment, and filters and driers.

General construction equipment, including bulldozers, graders, and excavators, has been imported in large quantities in conjunction with Korea's highway program. Preparation of industrial sites for the petrochemical complex at Ulsan, general industrial estates, the port development at Incheon, and Seoul's ambitious project for developing a satellite city on Yoi-do Island in the middle of the Han River (which together with the task of reclamation, construction of embankments, roads, and apartment buildings is expected to cost over 5.2 million won) represent some of the projects that Korean construction firms are presently undertaking and for which additional imports of equipment will be needed. A number of firms are also engaged in construction projects in Viet-Nam, and they expect to participate in any future development projects.

The major companies in the construction field (there are over 60 firms that undertook construction contracts

totaling \$1 million or more in the period 1966-67) include the Hyundai Construction Company, Keang Nam Enterprises, Hwail Industrial Company, Dae Lim Industrial Company, and Sam Ahn Industrial Company.

Most suppliers of mining and construction equipment are represented in Korea by offer agents, usually foreign nationals. One trading firm is establishing a bonded warehouse to stock spare parts and construction equipment. Competition among foreign suppliers for sales of construction equipment is heavy, and medium credit terms are not infrequently offered in the case of large package deals.

Construction and mining equipment are automatic approval items under the import licensing system, with the exception of brick-making machinery, cement mixers, coal crushers, crushing machines with a capacity of less than 20 tons a day, crushing machines for stone



Deep-shaft mining characterizes most of Korean mining operations. Equipment needs include compressors, rock drills, battery locomotives, and hoists.

gravel, sorting machinery, and ball or rod mills. The customs duty on concrete mixers is 10%; that on sorting, grinding, crushing, and moulding equipment,

50%; on bulldozers and excavators, 5%; coal cutters, 10%; buckets and grabs, 50%; and pneumatic hand tools, 10%.

Korean Imports of Mechanical Handling Equipment, 1964, 1967-68

(Thousands of U.S. dollars)

	Total			U.S.			Principal Suppliers
	1964	1967	1968	1964	1967	1968	
Lifting and loading machinery with engine freight lifting capacity over 10 metric tons	736	2,564	5,420	13	1,119	2,333	Japan, U.S.
Other lifting and loading machinery and parts ¹	1,978	4,133	7,559	778	1,867	1,464	Japan, U.S.
Fork-lift and platform trucks and parts	89	2,386	1,784	74	217	825	Japan, U.S.
TOTAL	2,803	9,083	14,763	865	3,203	4,622	

¹ In 1968, conveyors and parts accounted for \$3,441,000 of total imports and \$999,000 of imports from the U.S.

Source: Customs Bureau, Korean Ministry of Finance.

MECHANICAL HANDLING EQUIPMENT

Overhead cranes, dock cranes, hoists, and conveyor belts are produced in Korea, with cranes being manufactured on a made-to-order basis. Hankuk Machine Industrial Company and Korea Shipbuilding and Engineering Company are among those which have the capacity to manufacture cranes. The former company also has plans to manufacture smaller fork lift trucks under an existing technical licensing contract with a Japanese firm.

The conditions for the sale of mechanical handling equipment are very favorable. The continuing construction of multi-storied buildings in Seoul and other cities has created a sizable demand for elevators, most of which are currently supplied by Japan. Movement of goods in Korea has been impeded by the lack of railroad facilities and an adequate road network; as a result, a substantial amount of bulk goods are transported by coastal freighter. Even with increases in railway stock and the opening of a highway network, the growth in the Korean economy has been such that transportation facilities are being overstretched, thus accentuating the need for proper handling methods and equipment. Until recently, low labor costs were responsible for the great reliance placed on manpower to load, move, and unload goods, but with rising wages

and increased attention being placed on rapid delivery and turnaround of transportation facilities, this condition no longer prevails.

Rapid growth in the volume of international trade has led the Korean Government to undertake the construction of a tidal basin in Inchon, the gates and locks for which are scheduled for completion by the end of 1970. Loading equipment for this new facility will be needed. The Ministry of Construction has also announced plans to expand the cargo handling capacity of Pusan, Korea's largest port, from 5 million tons to 8.3 million tons in 1976. This project, whose cost has been planned at 9.2 billion won, envisages the construction of 2,230 meters of new quays and 1,775 square meters of landing area plus the creation of additional berthing space for two 40,000-ton vessels, seven 20,000-ton ships, and ten 10,000 tonners.

The Han Jin Transportation Company is one of Korea's largest stevedoring, warehouse, and general transportation firms.

Those offer agents handling construction and mining equipment also frequently represent suppliers of mechanical handling equipment. Mechanical handling equipment falls into the automatic approval category. Custom duties on elevators and conveyors are 20%; on engine-operated equipment with a freight lifting capacity of more than 10 metric tons, 10%; on blocks and chain blocks, 50%; and on all other mechanical handling equipment, 20%.

Korean Imports of Pumps, Centrifuges, Compressors, Taps, and Valves, 1964, 1967-68

(Thousands of U.S. dollars)

	Total			U.S.			Principal Suppliers
	1964	1967	1968	1964	1967	1968	
Pumps and elevators for liquids and parts	439	2,848	6,450	157	1,035	1,469	Japan, U.S.
Vacuum pumps	41	252	228	7	109	13	Japan, West Germany
Other pumps for gases	51	465	411	34	331	337	U.S., Japan
Air compressors	383	5,400	5,508	108	2,315	477	Japan, Belgium
Fans, blowers, similar machinery	260	800	1,525	84	170	223	Japan, U.S.
Parts for vacuum pumps, pumps for gases, compressors, fans	91	1,330	782	59	1,143	334	U.S., Japan
Centrifuges, filtering and purifying machinery for liquids and gases, and parts	285	2,385	3,120	82	556	543	Japan, U.S.
Taps, cocks, valves	515	3,599	5,109	240	1,789	1,557	Japan, U.S.
TOTAL	2,065	17,079	23,133	771	7,448	4,953	

Source: Customs Bureau, Korean Ministry of Finance.

PUMPS, CENTRIFUGES, COMPRESSORS, TAPS, COCKS, AND VALVES

While a variety of pumps, compressors, some filtering equipment, taps, cocks and valves are produced in Korea, the volume of imports remains large and is expected to continue. Pumps for agriculture and water-works use comprise the major portion of Korean pump production, and Lee Chun Electric Manufacturing Company is one of the largest producers in this field. Taps, cocks, and valves are manufactured in a number of brass and iron foundries.

Apart from general industrial demand, the main source of demand for pumps, valves, and related equipment in the future will stem from the construction of the petrochemical complex at Ulsan and other chemical plants. The competition between Korea's two oil refineries, together with the establishment of a highway

network and the growth of automobile ownership and use, also creates favorable opportunities for sales of gasoline pumps for new service stations. Demand for compressors is particularly active in the construction and mining sector (see section on Mining and Construction Equipment).

Because of the wide variety of applications of pumps and related equipment, the foreign supplier has usually found it advisable to be represented in Korea through an offer agent handling general industrial equipment. With the exception of certain pumps and blow-off and control cocks for level gauges—which need the prior approval of the Ministry of Commerce and Industry to be imported—pumps, centrifuges, compressors, taps, cocks and valves are automatic approval items. The customs duty on pumps for liquids and taps, cocks, and valves is 50%; that on liquid elevators, vacuum pumps, air or gas compressors, industrial fans or blowers, and centrifuges, 20%; and that on other pumps, 50%.

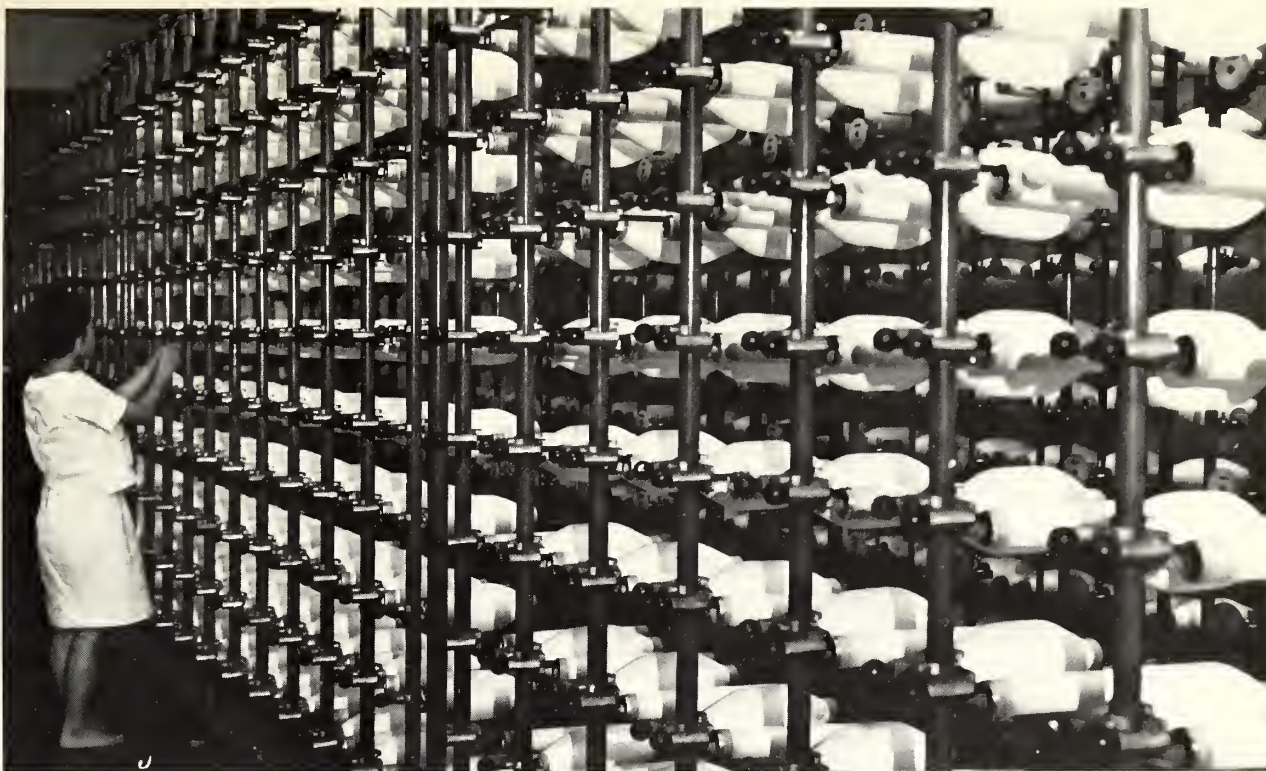
Korean Imports of Textile Machinery, 1964, 1967-68

(Thousands of U.S. dollars)

	Total			U.S.			Principal Suppliers
	1964	1967	1968	1964	1967	1968	
Spinning, extruding, twisting machinery	3,807	13,872	38,911	157	1,480	5,949	Japan, West Germany
Weaving, knitting machines	3,407	5,237	12,033	3	37	157	Japan, West Germany
Auxiliary machines and parts	913	1,592	2,535	68	63	83	Japan, West Germany
Machinery for the manufacture or finishing of felt	•	1	13	•	0	0	Japan
Textile bleaching, washing, dressing, coating, printing machinery	1,428	4,529	12,534	81	28	533	Japan, West Germany
Sewing machines and parts	360	2,669	3,651	13	15	113	Japan, West Germany
TOTAL	9,915	27,900	69,677	322	1,623	6,835	

*Data not available; thus imports assumed to be minimal.

Source: Customs Bureau, Korean Ministry of Defense.



The textile industry is Korea's largest. Most of the textile equipment is imported, as in the case of this producer of tricot items.

TEXTILE MACHINERY

Despite a fledgling textile machinery industry in Korea, most large textile mills depend on imports to meet their equipment needs. Some 70 companies are engaged in manufacturing textile machinery and parts (excluding sewing machines), but three large firms, of which Baichang Industrial Company is the best-known, dominate this industry. Jacquard looms, cotton and silk weaving looms, twisting machines, warping machines, stocking and doubling machines, flat knitting and hand knitting machines, and spindles and shuttles are produced in Korea. Production has shown little growth, and in some instances has declined.

Domestic sewing machines are manufactured primarily by two modern plants, Tong Yang Sewing Machine Manufacturing Company and Ideal Industrial Company. Production doubled from 84,489 units in 1964 to 162,273 in 1967. Industrial sewing machines have mainly been imported, but Korea hoped to meet a portion of demand by increasing its annual production capacity for industrial sewing machines to 6,500 by the end of 1968.

The cotton fabrics industry is the largest sector of the Korean textile industry. Production increases in the

cotton sector have been gradual. The industry in 1968 manufactured 84,000 tons of cotton yarn and 191 million square meters of cotton fabrics as compared to 1964 production of 65,000 tons of cotton yarn and 173 million square meters of cotton fabrics.

Wools and man-mades have increased much more rapidly. From a 1964 production of 1,152 tons of worsted yarn, 1,300 tons of woolen yarn, 40 million square meters of rayon fabrics, 5 million square meters of nylon fabric, and 9 million square meters of woolen fabric, output in 1968 increased to 2,153 tons of worsted yarn, 3,642 tons of woolen yarn, 67 million square meters of rayon fabrics, 66 million square meters of nylon fabrics, and 15 million square meters of woolen fabrics.

Industrial spindles number 727,000 for cotton, including an estimated 50,000 spindles for man-mades; and over 160,000 spindles for woolen and worsted yarns. The members of the Spinners and Weavers Association, which includes 30 of Korea's largest textile mills, plan to make equipment investments that will bring their facilities to 1,170,000 spindles for cotton and 80,000 spindles for man-mades in 1971. Korean mills are also turning to products of higher count yarns.

In 1971, installed woolen spindles are expected to increase to 65,000 and worsted to 460,000. Weaving facilities include 11,000 looms for cotton, roughly 17,000 for synthetics and silk, and nearly 2,000 looms for woollens. The cotton weaving industry is replacing its older 36" looms with wider width automatic looms of 52-57". Automatic looms will be introduced in growing number to keep up with the projected increases in yarn production.

The knitting industry, which is characterized by small-scale operations, is expanding rapidly, especially in the production of knitted synthetic goods such as acrylic sweaters, nylon socks and sport shirts, and tricot goods.

In operation are 7,323 circular knitting machines, 2,658 hosiery machines, 755 glove knitting machines, 10,878 flat knitting machines, and 335 warp knitting machines. Most of the warp knitting machines are of West German origin and were recently installed. By 1971 the 42 mills in the tricot knitting industry plan to purchase 130 warp knitting machines. The expansion

of the knitting industry has created a demand for nylon stretch machinery as well.

Imports of textile machinery have come largely from Japanese and European firms. Japan or West Germany is the preferred source for most textile finishing equipment because of price, but Korean manufacturers are interested in such U.S. equipment as spindles, automatic looms, and nylon twisting machinery.

Most textile machinery is sold directly to manufacturers. Since textiles and apparel are Korea's chief export, the Government extends beneficial customs treatment to imports of related equipment, and many textile firms are able to avail themselves of concessionary financing from the Government. Apart from domestic sewing machines and certain industrial sewing machines, licenses for imports of textile machinery are automatically approved. The customs duty on nearly all textile machinery is low: 5% for spinning, extruding and auxiliary machinery, and 20% for weaving, knitting, dressing and finishing machinery.

Korean Imports of Electric Power Machinery, 1964, 1967-68

(Thousands of U.S. dollars)

	Total			U.S.			Principal Suppliers
	1964	1967	1968	1964	1967	1968	
Electric generators	3,189	5,233	16,658	417	1,120	2,556	Japan, West Germany
Electric motors	1,711	3,055	3,371	273	1,554	559	Japan, West Germany
Transformers	1,249	3,986	5,849	173	1,144	407	Japan, U.S.
Rectifiers and rectifying apparatus	77	507	508	23	167	25	Japan, U.S.
Converters and exchangers	•	57	586	•	3	112	Japan, U.S.
Inductors	37	448	736	15	55	72	Japan, U.S.
Miscellaneous parts	•	•	378	•	•	121	Japan, U.S.
Electrical apparatus for making, breaking, or protecting electrical circuits	2,731	8,369	16,763	540	2,648	2,518	Japan, West Germany
Insulated wire and cable for electricity	1,243	2,650	2,498	153	760	448	Japan, U.S.
Electrical insulating equipment	189	1,364	2,926	113	546	498	Japan, West Germany
TOTAL	10,426	25,669	50,273	1,707	7,997	7,316	

*Data not available; thus imports assumed to be minimal.

Source: Customs Bureau, Korean Ministry of Finance.

ELECTRIC POWER MACHINERY

Korea has achieved a notable degree of self-sufficiency in the production of electrical equipment. Electric motors up to 1,500 h.p. range are manufactured, although most output is in the range below 100 h.p. Production of induction motors reached 54,000 units

in 1967 as compared to 32,000 units in 1966. Some generators are also manufactured in Korea. Transformers of a capacity up to 6,600 kva are made in Korea, and plans are being laid to produce larger capacity power transformers. Wire is available from local sources for the distribution of electricity of the highest voltage carried in Korea, 154,000 volts. On the other

hand, cable with a maximum distribution capacity of only 22,000 volts is manufactured. Plans to upgrade the production of circuit breakers and other switchgear are being undertaken; at present only switchgear for low voltages is being produced in Korea. The major firms producing electrical equipment are Lee Chun Electric Manufacturing Company, Han Yung Industrial Company, Kukje Electric Wire Industrial Company, Tai Han Electric Wire Company, and Gold Star Company.

The unanticipated pace of Korea's economic development has, in the past, oustripped plans for the development of electric power resources, and even with intensive acceleration of projects under construction and the introduction of new plants, Korea was forced to impose power rationing. In order to encourage the rapid construction of new power facilities, the Government broke with the past policy of maintaining the Government-run Korea Electric Company's (KECO) monopoly on electric power and approved the construction of privately-owned power companies. With power production capacity rated at 1,250,000 kw at the end of 1968, the period of power shortages is at an end. To meet projected growth in the manufacturing sector and growth in the consumption of electricity for home use, which has risen rapidly as shown by the increase in demand for home electric appliances, planning schedules call for the erection of facilities that will bring capacity to 3.8 million kw by the end of 1971.

Because of past power shortages, a number of manufacturing installations, particularly in the chemical industry, which is the largest industrial consumer of electricity, have found it necessary to build their own power producing facilities to supplement KECO's supply. Thus, in addition to the market for electric power machinery represented by KECO, a substantial private market exists as well. Since Korean voltage standards are identical with those of the United States, U.S. suppliers have a built-in advantage. Insulators and materials, large switchgear, high voltage cables, large electric motors, and generators are among those items for which a favorable market exists.

Most sales are made to KECO, with tenders handled by the supplier's local agent. Imports of most electric motors, transformers, choke coils, fuses, connectors, plugs and sockets require the approval of the Ministry of Commerce and Industry before an import license is granted. The customs duty on generators is 10%; on induction motors rated at more than 746 kw, 10%; on induction motors rated at less than 746 kw, 70%; on converters, 20%; on transformers with a rated capacity of more than 30,000 kva, 20%; on transformers with a rated capacity of less than 30,000 kva, 70%; on relays, 20%; on circuit making and breaking equipment, fuses, and plugs, 20%; on insulators, 40%; and on insulating fittings, 20%. The customs duty on conduit tubing is 50%, while that on insulated and sheathed wire ranges from 50-70%.

Korean Imports of Telecommunications and Electronic Equipment, 1964, 1967-68

(Thousands of U.S. dollars)

	Total			U.S.			Principal Suppliers
	1964	1967	1968	1964	1967	1968	
Television receivers	16	171	297	8	57	67	Japan, U.S.
Parts of TV receivers	•	648	938	•	5	335	Japan, U.S.
Radio receivers	68	407	1,773	1	21	14	Japan, U.S.
Parts of radio receivers	79	247	725	1	35	176	Japan, U.S.
Electrical line telephone and telegraph equipment and parts	4,985	3,165	4,770	173	353	530	West Germany, Japan
Microphones, loudspeakers, amplifiers and parts (incl. telephone receivers and transmitters)	247	250	492	8	28	61	Japan, Hong Kong
Other telecommunications equipment and parts	499	2,667	9,771	134	608	6,644	U.S., Japan
Thermionic valves, tubes, photocells, transistors	333	3,201	7,451	62	1,261	5,244	U.S., Japan
Electrical condensers	225	586	1,632	15	66	26	Japan, U.S.
TOTAL	6,452	11,342	27,849	402	2,434	13,097	

*Data not available; thus imports assumed to be minimal.

Source: Customs Bureau, Korean Ministry of Finance.



Most TV sets are produced for the domestic market. Output has soared since 1966, when only 8,000 sets were manufactured.

ELECTRONICS AND TELECOMMUNICATIONS EQUIPMENT

This sector of Korean industry has undergone considerable expansion in recent years, and spurred by the activities of a number of U.S. companies that have invested in the local electronics industry, a wide variety of electronics is now manufactured and assembled in Korea.

Transistor radios make up the largest portion of production, which reached a peak of 858,000 sets in 1961 before declining to 440,000 in 1967. Some three-quarters of the parts for transistor radios are manufactured domestically, but the remainder must be imported. The largest radio manufacturers include Gold Star Company, Chunusa Company, Dong Nam Electric Industrial Company, and Sam Yang Electric Industrial Company. Many firms employ sub-contractors to produce parts. In addition, some of the American electronic enterprises in Korea, such as Semikor and Moto-

rola, supply transistors and circuits to the local industry.

Although many transistor radios are exported, TV sets are produced primarily for the domestic market. The two major TV set manufacturers, Gold Star Company and Dong Nam Electric Industrial Company, have technical licensing agreements with Japanese firms, and only about a third of the parts are produced in Korea. Domestic production of TV sets has increased rapidly, from 8,000 sets in 1966 to 28,000 in 1967. U.S. subsidiaries in Korea assemble components such as transistors, diodes, circuits, and memory planes, while condensers, resistors, speakers, tuners, and capacitors are produced by Korean firms.

An 8-year electronics industry promotion plan, formulated at the beginning of 1968, sets an electronic export goal of \$100 million for 1971 and \$400 million in 1976. The plan calls for eventual production of such items as TV cameras, public address systems, electrocardiographs, and electronic measuring instruments, as well as expanded production of tape recorders, phonographs, semiconductors, integrated circuits, and resistors.

Korean imports of electronic items, particularly from the United States, have chiefly been transistors and other components which are shipped to U.S. subsidiary companies in Korea for assembly and then re-exported. Japan, on the other hand, has also been able to sell a substantial amount of components to Korean radio and TV manufacturers. With the projected growth in the Korean electronics industry, the United States appears to have favorable prospects for sales of parts, incorporating new technology, for those items that Korea hopes to produce in the future. Sales of such goods are usually made directly to manufacturers.

Capacitors, TV tubes, TV receivers, and transistor radios are restricted import items. Complete TV and radio sets are subject to a 100% ad valorem customs duty, while their parts carry a duty of 50%. Variable condensers are subject to a 50% rate of duty while other capacitors are subject to duties ranging from 20-70%. Cathode-ray tubes for TV receivers are subject to a 50% rate of duty, and other thermionic valves, semiconductors, and parts are subject to a 20% rate of duty. However, since a substantial production of Korean electronics is destined for exports, many factories are either bonded or otherwise import on a duty-free basis.

Apart from the electronics industry, Korea is able to produce part of its requirements for the communications sector. Local production of communications cable is reasonably well advanced, with two Korean firms in

a predominant position—Taihan Cable and Wire Company and Gold Star. The latter company, together with Oriental Precision Company, is also engaged in the manufacture of telephone equipment. Gold Star produces telephone sets and automatic telephone exchange equipment of the EMD type while Oriental Precision Company manufactures the Strowger type. Some componentry for these exchanges are still imported by the two companies from West Germany and Japan. The Oriental Precision Company also has plans to manufacture radio telephone sets and direction and fish finders, all for the Korean fishing fleet.

The most promising opportunities for sales of U.S. telecommunications equipment lie in Korean plans for additions to the country's present microwave and TV systems. The Ministry of Communications is seeking to expand the recently completed system of 1,368 circuits installed under a \$8.4 million AID loan by 804 circuits, in the near future, and eventually by a further 1,200 circuits. The construction of an earth satellite station under a \$3.68 million Eximbank loan is but one indication of the growth of TV in Korea; the increasing domestic production of TV sets is another.

In addition to the presently operating Government-owned KBS and privately-owned Tongyang Broadcasting Corporation, a new private TV broadcasting service is planned by the Munwha Broadcasting Company. The Ministry of Communication's recent Five-Year Plan forecasts that an additional 15 AM radio broadcasting stations will be established at an investment of about \$1.3 million as well as 10 television stations at an investment of \$1.7 million. Most of these are ex-

pected to be privately owned. The same plan projects the installation of an additional 1,659 lines to Korea's teletypewriter exchange system at a cost of \$5.8 million, plus expansion to Korea's telephone network as mentioned in the section on Communications in Chapter I.

The largest consumer of telecommunications equipment is the Ministry of Communications which, like all Government agencies, places its orders through the Government procurement agency (OSROK). Other Government end-users of telecommunications equipment are the Aviation Bureau, Ministry of Transportation; Central Broadcasting Station, Ministry of Culture and Public Information; and the Police Bureau, Ministry of Home Affairs. Suppliers usually find it advisable to be represented in Korea if they plan to do Government business so that foreign suppliers can be rapidly apprised of upcoming developments.

Under the import licensing system a wide variety of telephone equipment is restricted, including switchboards, telephone sets, automatic and non-automatic telephone exchanges. The customs duty on telephone sets is 70%, that on parts 40%; the duty on telephone switchboards and exchanges and apparatus for carrier-current line systems is 50% while that on parts is 20%. TV cameras, radio broadcasting transmission and reception equipment, teletypes and teleprinters, and picture telegraphic apparatus are subject to a 15% rate of duty. Portable radio telephonic equipment, radar apparatus, and direction finders are subject to a 50% rate of duty, and the parts are subject to a 20% rate of duty. Radio navigational aid equipment and parts carry a duty of 10%.



Women workers in this Pusan plant are turning out electric gauges to meet growing demand.

Korean Imports of Air-Conditioners, Refrigerating and Freezing Equipment, 1964, 1967-68

(Thousands of U.S. dollars)

	Total			U.S.			Principal Suppliers
	1964	1967	1968	1964	1967	1968	
Air-conditioning machines and parts	407	2,088	3,900	108	528	1,388	Japan, U.S.
Refrigerators (non-domestic) and refrigerating equipment	243	1,675	2,850	81	260	271	Japan, U.S.
Non-electric domestic refrigerators	•	82	67	•	1	11	Japan, U.S.
Domestic electric refrigerators	35	435	1,294	13	183	460	U.S., Japan
TOTAL	685	4,280	8,111	202	972	2,130	

*Data not available; thus imports assumed to be minimal.

Source: Customs Bureau, Korean Ministry of Finance.

AIR CONDITIONERS, REFRIGERATION AND FREEZING EQUIPMENT

The rise in living standards resulting from rapid economic growth has fostered the development of a home appliance industry, which is producing domestic refrigerators in addition to such items as fans and oil, kerosene, and electric space heaters. Gold Star Company is the best known of such manufacturers, and under technical licensing agreements it is producing both household refrigerators and room air condition-

ers. Some 3,000-4,000 air conditioners are assembled annually in Korea.

Korean summers tend to be muggy and humid with temperatures rising above 95°F., and air conditioning equipment is frequently installed in new office buildings. Possession of air conditioners has become somewhat of a status symbol, thus reinforcing the already sizable demand for the equipment. Korean manufacturers have paid only limited attention to ventilation and air conditioning equipment for industrial use, but the potential market for such equipment is large because of the number of new industries, in addition to textiles, in



Cold storage and freezing facilities are being developed by the Agriculture and Fishery Development Corporation. Frozen shrimp is a favorite product of Korea's freezing industry.

which the manufacturing process is accompanied by an odoriferous and semi-toxic environment or in which a stable temperature and humidity level is required. Such industries include plastic processing, petrochemicals, synthetic fibers, pharmaceuticals, and other chemicals. The emphasis being placed on quality control and testing, and the plans for development of the electronics industry, make it likely that environmental control equipment for testing rooms will be required in the future. At the moment, the Fine Instruments Center is reported to have the only completely environment-controlled room in Korea.

A food distribution system characterized by many small outlets and high profit margins, together with the recognized need both to augment the cash income to the country's farmers and to reduce the cost of food to the urban consumer, has led the Government to encourage the growth of supermarkets and grocery chains as well as to foster the development of centralized wholesale markets and storage centers. Under one project sponsored by the Agriculture and Fisheries Development Corporation (AFDC), for example, a cold storage center for onions and other vegetables was constructed so that farmers could benefit from higher prices for such food items in the winter months and consumers would be guaranteed fresh vegetables throughout the year. The Asian Development Bank has approved a \$7 million loan to the Korea Cold Storage Company, an affiliate of the AFDC, to help finance the

construction of cold storage facilities for fish products in Korea. Similar projects of this nature are being formulated by the AFDC, which together with the institutional needs of hospitals and hotels, and the planned growth in size of food distribution centers, strengthen prospects for sales of refrigeration equipment.

In conjunction with plans to develop and modernize the food processing industry, especially for export, a number of frozen food plants are envisioned. Well over 100 plants are already engaged in the freezing and cold storage of fish and prepared fish products. The industry's main products include frozen shrimp and cooked and frozen crabs. Indicative of the rapid development of the industry has been the growth in exports of shrimp and crab (mostly frozen), which have risen from 3,440 tons in 1965 to 5,828 tons in 1967. In addition to frozen fish products, Korea hopes to develop a frozen food industry of agricultural products as well.

Sales of air conditioning, refrigeration and freezer equipment are usually handled by offer agents. Under the import licensing system, domestic electric refrigerators and air conditioners are restricted items, while all others are automatic approval items. Refrigerators are subject to a customs duty of 100%; refrigerating equipment, 20%; air conditioners of a power requirement less than 5,595 watts, 100%; other air conditioning equipment, 50%; and all other refrigerating and freezing equipment, 50%.

Korean Imports of Scientific, Control, Testing and Measuring Apparatus, 1964, 1967-68

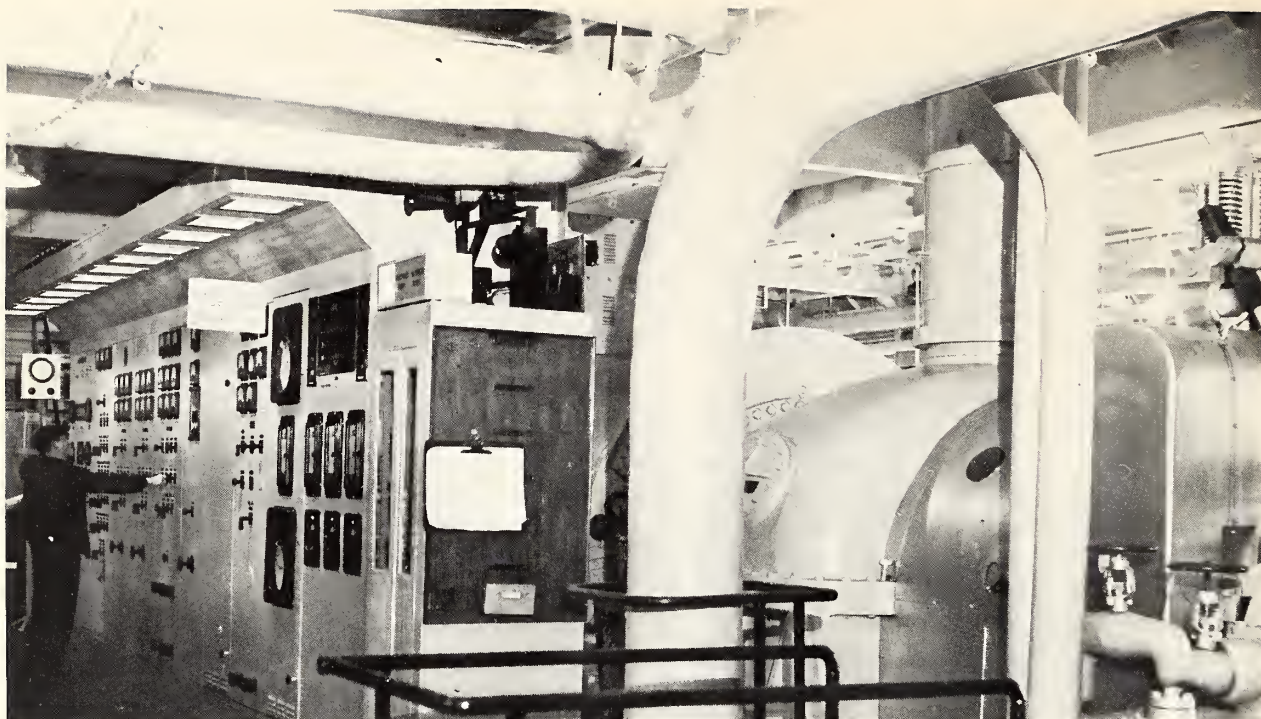
(Thousands of U.S. dollars)

	Total			U.S.			Principal Suppliers
	1964	1967	1968	1964	1967	1968	
Electricity supply meters	126	142	497	0	16	69	Japan, U.S.
Other electrical measuring and controlling instruments and apparatus ¹	639	3,439	4,116	236	1,085	1,261	Japan, U.S.
Gas or liquid supply meters	*	83	78	*	17	26	Japan, U.S.
Revolution, production and other counters	26	50	137	3	3	35	Japan, U.S.
Surveying, and other instruments	93	624	301	67	41	19	Japan, Netherlands
Balances	29	173	269	17	76	44	Japan, U.S.
Drawing, measuring, calculating instruments, etc.	67	383	655	11	85	91	Japan, U.S.
Technical models for demonstration	*	101	77	*	74	14	Japan, U.S.
Mechanical appliances for testing physical properties of industrial materials	100	310	738	33	68	86	Japan, U.S.
Hydrometers, thermometers, etc.	50	202	234	9	71	39	Japan, U.S.
Instruments for measuring or controlling the flow, depth pressure, and other properties of liquids or gases	115	501	1,087	82	195	322	Japan, U.S.
Instruments, other than mechanical, for physical and chemical analysis	215	569	859	120	126	259	Japan, U.S.
Miscellaneous parts and accessories for scientific, control, testing, and measuring instruments	231	530	524	28	121	151	Japan, U.S.
TOTAL	1,691	7,107	9,572	606	1,978	2,416	

¹ In 1968 automatic control instruments and apparatus imports were valued at \$3,289,000, of which \$1,096,000 were from the U.S.

*Data not available; thus imports assumed to be minimal.

Source: Customs Bureau, Korean Ministry of Finance.



Industrial control equipment needs are expanding in response to the construction of new chemical plants. A Korean technician monitors operations at the Korea Fertilizer Company plant.

SCIENTIFIC, CONTROL, TESTING AND MEASURING APPARATUS

Apart from simpler instrumentation produced in Korea, such as watt hour meters, voltmeters, ammeters, surveying instruments, and thermometers, Korea relies on imports to meet the needs of research establishments, quality control testing centers, and manufacturing enterprises.

In the past the Korean Government—particularly the Ministry of Communications, the Korea Bureau of Weights and Measures, the National Industrial Research Institute, the Ministry of Science and Technology, and the Atomic Energy Research Institute—has been the main market for scientific, testing, and measuring equipment. However, with the growth in manufacturing, a large market for instrumentation is developing in private industry. Indicative of the role that Korea expects science and technology to play in its industrial development is the establishment of the Korean Institute of Science and Technology (KIST), an autonomous industrial research institute which maintains close working relations with overseas counterparts including the Battelle Memorial Institute of the United States. It has received over \$9 million in AID funds, \$3 million of which has been for procurement of

scientific equipment. KIST is designed to provide the scientific underpinning for Korea's industrial expansion, and it is hoped that it will become self-sufficient through sales to industry of its research services. The laboratory facilities and research capability are directed to serving the chemical industry (particularly in the fields of chemical analysis, corrosion, lubricants, polymers, and solid state chemistry), electronic and electrical equipment industry (particularly in the fields of solid state physics, semiconductors, passive components, and reliability testing), metal industry (particularly in the fields of physical metallurgy, mineral processing, foundry work, and metal working), the food processing industry, and the non-electrical machinery industry (particularly in the field of material testing and mechanical engineering).

Emphasis on quality control for exports, and adoption of a Korean Standards (KS) mark system under which goods certified to have attained a certain degree of quality and consistency are permitted to bear the KS mark, have widened the demand for testing equipment. The electronics industry is one of the prime users of testing equipment in Korea, but textiles, base metals, and the chemical industry are also improving their instrumentation.

The market for industrial control equipment has been mainly confined to the large chemical and ferti-

lizer plants and to the two oil refineries. The planned petrochemical complex at Ulsan and the application of industrial control systems to other industries create further sales opportunities.

The Fine Instruments Center, a United Nations project located in Seoul, offers calibration and repair services for scientific and testing instruments in addition to its primary function of training technicians in the operation and maintenance of scientific, medical, and industrial instrumentation. The growing body of personnel thus trained has made the Korean market more

familiar with the application of instrumentation and its maintenance.

Scientific, testing, measuring, and control equipment are usually marketed by offer agents, some of which do stock rapid-turnover instruments together with spare parts. Generally, instruments may not be imported on D/A or D/P terms. Apart from voltmeters, ammeters, and certain thermometers which are restricted import items, licenses for the import of scientific, testing, measuring, and control equipment are granted on an automatic approval basis. Most instrumentation is subject to a 20% rate of duty.

Korean Imports of Food Processing and Packaging Machinery, 1964, 1967-68

(Thousands of U.S. dollars)

	Total			U.S.			Principal Suppliers
	1964	1967	1968	1964	1967	1968	
Machinery for milling grain, etc., of the pneumatic conveyor type and parts	*	2	29	*	0	0	West Germany, Japan
Other machinery for the working of cereals or dried leguminous vegetables	9	40	8	0	16	0	Japan
Machinery used in preparation of meat, fish, fruit, vegetables and in confectionery and bakery manufacture	62	475	612	2	6	32	Japan, U.S.
Automatic wrapping machinery and parts	698	619	597	57	15	33	Japan, West Germany
Machinery for cleaning, filling, closing, packing containers	173	157	628	90	37	86	Japan, West Germany
TOTAL	942	1,293	1,874	149	74	151	

*Data not available; thus imports assumed to be minimal.

Source: Customs Bureau, Korean Ministry of Finance.

FOOD PROCESSING AND PACKAGING EQUIPMENT

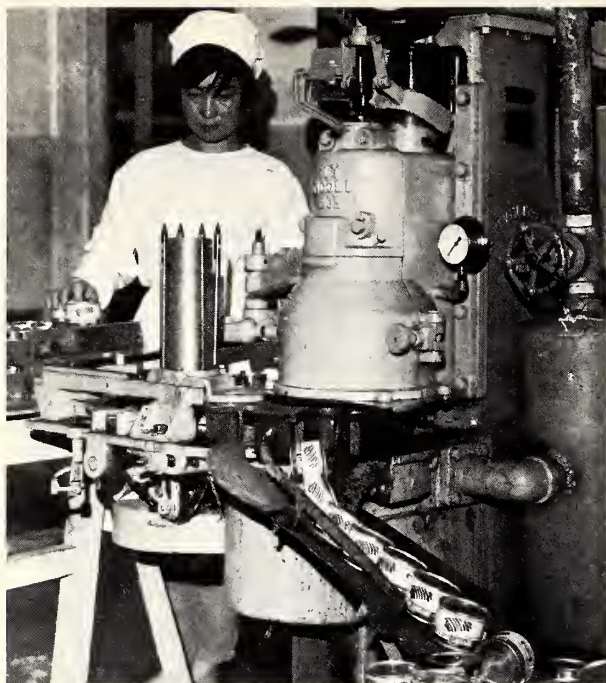
Little food processing or packaging equipment is manufactured in Korea except on a made-to-order basis.

The Agriculture and Fishery Development Corporation (AFDC) plays a key part in the expansion and modernization of the food processing industry. Capitalized at 10 billion won, it is authorized to participate in financing new enterprises or expanding and modernizing already established operations in the field of food processing and marketing.

Although flour milling and sugar refining occupy a large place in the Korean food processing industry, the over-capacity of these industries and the uncertainties surrounding raw material supply adversely affect the prospect of equipment sales. A much more favorable climate is associated with the canning, beverage, freezing, and bakery sectors.

Canning operations, until the 1960's, were limited to fishery products, but now a wide variety of agricultural products, including mushrooms, juices, peaches, apples, pears, vegetables, jams, and meat, are packed in Korea's 108 canneries.

Fluctuating fish catches and export demand have affected the total production of canned foods which decreased from a peak of 8,158 tons in 1965 to 3,655 tons in 1968. Within this production, however, the share of agricultural products has risen rapidly. Some years ago, the principal marine canneries were estimated to have 142 sets of clinchers and seamers, 130 retorts and sterilizing machines, and 50 sets of boilers. An additional 60 clinchers were estimated to be in operation in these firms canning agricultural produce. The largest part of production is destined for domestic consumption. The changing diet patterns associated with rising income, together with the lack of fresh vegetables during the winter season, promises a good future for the canning industry.



A sausage-canning operation of the Oriental Food Industrial Company. A wide variety of products are packed in over a hundred Korean canneries.

One problem facing the further expansion of the canning industry in Korea is the need to develop facilities for the coating and lining of cans. At present there are five can manufacturers in Korea with a total annual capacity of about 1.5 million cases. The Dong Yang Can Manufacturing Company and the Sam Hwa Can Maker Company are among the principal can manufacturers. In addition to can making and sealing

machinery, juice concentrating equipment, chopping and sorting equipment are among Korea's requirements for the food processing industries.

Bakery products, including biscuits and noodles, have gained a wide degree of popularity with the Korean consumer, thus creating a demand for equipment used in the manufacture of such products. The Oriental Brewery Company and the Chosun Brewery Company monopolize the beer industry in Korea, and the former has begun to market beer in aluminum cans, thus introducing this type of packaging to Korea. Beer consumption has been steadily on the increase; production rose from 24,800 kiloliters in 1964 to 53,800 kiloliters in 1967. Similar increases have been recorded by the country's 56 soft drink producers—from 15,000 kiloliters in 1964 to 31,500 kiloliters in 1967; and in production of rice wine, from 12,000 kiloliters in 1964 to 22,500 kiloliters in 1967. Bottling and labeling, to a large degree, are done by hand. Thus, beverage producers and canneries represent a potential market for modern equipment in these fields. There are some 45 glass container manufacturers in Korea and the rising demand for beverages and bottled products is expected to create a demand for modern equipment.

Korea is rapidly undergoing the packaging revolution that has already swept the Western world. The development of a local plastics industry has increased the use of this material in packaging. Fertilizer, for example, is now packaged in plastic-lined paper bags; urea foam containers are produced for the shipment abroad of electronic consumer articles. Cellophane sheets are manufactured by the Union Cellophane Industrial Company's plant opened in 1967, with a daily



This plant of the Korea General Foods Corporation packages a variety of rations used by the armed forces.

capacity of 5 tons; the plant was expected to meet half Korea's cellophane needs in 1969. The application of plastics to packaging in Korea has generated a demand for such items as blister and skin packaging equipment, film packaging equipment, and plastic-lined carton making machines, as well as bagging and sealing equipment.

Imports of food processing and packaging equipment from the United States have been small, and Korea has turned to Japan for much of its needs in this field. This may reflect a desire on the part of Korean end-users to purchase simpler equipment for low-vol-

ume operations in which labor rather than equipment would still be the major cost component. Representation through an offer agent would appear to be the best method of handling sales of such equipment in Korea. Butchery machinery, crystallizing equipment for sugar refining, food cutting machines, food drying machines, confectionery dipping machines, and dough and food mixing machines are restricted import items. Imports of other food processing and packaging equipment are licensed on an automatic approval basis. Almost all food processing and packaging equipment is subject to a 20% rate of duty.

Korean Imports of Power Hand Tools, 1964, 1967-68

(Thousands of U.S. dollars)

	Total			U.S.			Principal Suppliers
	1964	1967	1968	1964	1967	1968	
Non-electrical motorized hand tools for use in mining and construction	120	395	1,177	1	67	37	Japan, Sweden
Non-electrical motorized hand tools for metalworking	*	10	33	*	0	4	Japan, U.S.
Other non-electrical motorized hand tools	51	161	257	41	17	47	Japan, U.S.
Tool holders for mechanical hand tools	48	319	178	28	2	11	Japan, Philippines
Electro-mechanical hand tools for use in mining and construction	*	10	6	*	4	1	Japan, U.S.
Electro-mechanical hand tools for metalworking	10	207	366	0	3	17	Japan, U.S.
Other electro-mechanical hand tools	25	101	408	18	20	264	U.S., Japan
TOTAL	254	1,203	2,425	88	113	381	

*Data not available; imports thus assumed to be minimal.

Source: Customs Bureau, Korean Ministry of Finance.

POWER HAND TOOLS

While some welding equipment is made locally, most power hand tools are either imported or acquired through purchases of excess U.S. Government property.

The labor-intensive character of most of Korean manufacturing, and the desire to raise labor productivity without extensive capital investment, have created a large demand for power hand tools. The abundance of small machine shops and the need for further finishing to the products coming off Korean production lines offer a large potential market for power hand tools of all sorts.

In the past, U.S. suppliers have concentrated on meeting the large requirements of the construction and mining industry for such items as jack hammers and

rock drills. The Japanese have been more aggressive in tapping the manufacturing sector primarily because they have been able to cover the market by supplying small Korean outlets with stocks of power hand tools. Since Korean electrical standards are the same as those for the United States, American suppliers have a built-in advantage in the sale of electric hand tools. However, they must be willing to work through small industrial equipment distributors, with a local representative overseeing the operations of subsidiary outlets.

Apart from certain welding equipment, licenses for the import of power hand tools are approved on an automatic approval basis. Power hand tools for use in mining and construction are subject to a 10% customs duty; others are subject to a 20% duty, while gas-operated welding, brazing, cutting or surface tempering appliances are subject to a 70% rate of duty.

Korean Imports of Plastic Processing Equipment, 1964, 1967-68

(Thousands of U.S. dollars)

	Total			U.S.			Principal Suppliers
	1964	1967	1968	1964	1967	1968	
Moulding boxes for metal foundry, moulds for mineral materials, rubber and plastics	12	135	343	1	41	27	Japan, West Germany
Calendering and similar rolling machines and cylinders ¹	138	723	2,091	0	0	293	Japan, West Germany
Machine tools for working wood, hard artificial plastic materials, etc. ²	194	2,372	4,685	27	85	184	Japan, West Germany
TOTAL	344	3,230	7,119	28	126	504	

¹ Of this category, rolling machines for rubber and artificial resins accounted for \$531,000 of total imports in 1968 and \$191,000 of imports from the U.S.

² Of this category, machine tools for other than working wood accounted for \$340,000 of total imports in 1968 and \$133,000 of imports from the U.S.

Source: Customs Bureau, Korean Ministry of Finance.

PLASTICS PROCESSING EQUIPMENT

Manually operated presses, extruders of 50-60 mm. screw diameter, injection moulding machines of 5 oz. or less, and moulds are manufactured locally.

Production of plastic products has risen extremely rapidly, from 12,500 tons in 1964 to 45,100 tons in 1968. Of the 1967 production of 27,300 tons, polyvinyl chloride goods, including vinyl sheets and leather, plates, film sponge, and wire covering, accounted for some 9,000 tons; polyethylene products, such as rain-coats, kitchen utensils, agricultural film and fishing ropes, for about 9,900 tons; and polystyrene and polypropylene, including building materials and yarns, for some 8,000 tons. There were some 100 plants in the plastics processing industry as of the end of 1966; their production facilities were reported to include 191 injection moulders, 276 extruders, 6 calenders, and 656 pieces of associated equipment. Lucky Chemical Com-

pany is among the largest plastic products manufacturers in Korea. Many firms in this field belong to the Plastic Production Cooperative.

Despite present over-capacity in the industry, prospects for sales of necessary equipment are excellent. The completion of new plants in Korea for production of PVC, and of intermediates at Ulsan (see Chemical section in Chapter II) will make the necessary raw materials locally available. The processing industry is expected to respond to this new availability by enlarging its production facilities. The Korean Government has set an export goal for plastic products of \$14 million in 1969, and \$22 million in 1971.

Offer agents handling industrial equipment usually represent suppliers of plastics processing equipment. Imports of plastics processing equipment are licensed on an automatic approval basis. A duty of 20% is assessed on most plastics processing equipment including moulds and calenders.

Selling and Distribution

GENERAL CHARACTERISTICS OF DISTRIBUTION SYSTEM

As in many developing countries, the traditional ways in which goods are transferred from the producer to the ultimate consumer coexist with more modern distribution systems. Thus village markets and bazaars are common throughout Korea while chains of service stations, authorized automobile service facilities, supermarkets, and quasi-department stores are rapidly becoming part of the distribution network. Still reasonably typical, however, is the distribution structure of Taegu with nearly 6,000 retail outlets serving a population of 887,000. In general there is little distinction between the wholesaling and retailing functions in Korea, and local manufacturers frequently require that wholesalers deposit key money with them in return for acting as their distributor. The high cost of money has impeded the growth of wholesalers and authorized distribution chains, for local manufacturers are not always willing to extend credit when supplying goods to sales outlets.

As the nation's capital, the largest industrial center, and the most populated city, Seoul has become the

distribution point for the entire country. End-users, consequently, find it more difficult to secure merchandise and after-sales servicing from outlets in other parts of Korea.

IMPORT DISTRIBUTION

Since by law only registered traders are authorized importers, all imported merchandise is handled, in some form, by registered traders—with the exception of goods brought into Korea by end-users under foreign economic assistance programs, those imported in connection with foreign private investment, raw materials and components imported for processing and then re-exported, and Korean Government procurement.

Trader's licenses are issued by the Government on the basis of the applicant's export performance. Since a growing number of manufacturing firms export their products, many are registered traders—thus enabling the manufacturer to import needed raw materials and equipment for his operation without recourse to a middleman—but not all conduct a general import business.

As of August 1969, 882 firms were registered traders. A substantial number of these act as agents for foreign suppliers. In addition there are some 700 offer

or commission agents registered with the Korean Ministry of Commerce and Industry, including a number of branches or liaison offices of foreign firms. Those agents act as representatives of foreign manufacturers and suppliers and make offers on behalf of their principals, but unless they are also registered traders, they are not authorized to import on their own or hold title to imported merchandise. Sales commissions range from 2 to 10%, depending on the size of the transaction and the need to cut margins in order to meet competition.

The practice by trading firms of maintaining equipment, materials, or spare parts inventories is little known in Korea, although a few traders do carry small inventories of rapid-turnover items such as diesel engine parts; simpler scientific, medical and industrial control instrumentation; pharmaceuticals; and office machinery. The high rate of interest in Korea and the low capitalization of most trading firms discourages this practice, and since imports on a consignment basis require a special permit from the Ministry of Commerce and Industry, foreign suppliers are seldom in a position to aid the trading firm in stocking its merchandise. To date, only one firm has established a fully operating bonded warehouse, stocking equipment and parts which are released to the buyer after his application for an import license is approved and the customs duties paid.

Other trading entities are likely to examine this way of doing business in the near future. There are a large number of bonded areas in Korea, mostly close to the ports. These are primarily used to store goods awaiting customs clearance. Others are associated with factories processing the stored materials for export. Thus, stocking in bond does not yet play an important role in Korean import distribution.

In marketing their products in Korea, U.S. suppliers have a number of alternatives open to them, including establishment of a branch sales office managed by home office personnel, appointing as their representative one of the American trading firms in Korea, selecting a registered trading firm to act as their agent, or making a registered offer agent their agent in Korea. Frequently, foreign suppliers will appoint several agents to represent the company's different product lines or will pursue a mixture of the above alternatives, such as establishing a branch office with responsibility for formulating and executing a general sales campaign in the country, and for supervising other agents.

A large number of U.S. companies have established regional headquarters for the Far East in Tokyo, Hong

Kong, or Singapore. These are headed by personnel from the home office who are assigned the task of developing a sales strategy for the region and providing support to company agents in each country in the region. Such support can include frequent visits by the regional headquarters staff to the field to examine sales performance and acquaint local personnel with new product lines or new sales techniques.

Each of the possible methods of covering the Korean market has its advantages and disadvantages. There is certainly no dearth of choice in selecting a registered trading firm or an offer agent to act as an agent. Many tend to specialize in certain product lines such as instrumentation, logs and pulp, chemicals, construction and mining equipment, and general industrial equipment. While large trading firms may be better known, they may not be able to devote as much attention to a single principal as do some of the smaller firms. On the other hand, because of their size, they may be more influential as a representative and may be more willing to extend credit or vouch for a prospective client.

Appointing a registered trading firm rather than an offer agent as one's agent has the advantage that such a firm is able to offer the service of handling the paper work of importing and can import on its own account. If the offer agent is selected as one's agent, the ultimate end-user must apply for the necessary license, and, if he is not a registered trader, must utilize a registered trader to import the goods on his behalf. However, since registered traders split their business between exports and imports, they may not be in a position to give as much attention to importing as do offer agents.

Selecting one of the 10 or so American trading firms in Korea to act as an agent may offer the advantage of having a true representative of the firm in Korea, keep in an eye open not only on sales but on other interests. There are also the advantages inherent in a bond of language and a common way of doing business. Such firms, however, like the large Korean trading firms, may sometimes handle too many agencies for maximum effectiveness or may not be aggressive in searching out new business, concentrating instead on larger and well-known Korean clients. In seeking a sales representative to cover the Korean market, the U.S. supplier can obtain help and advice from the Korean Traders Association (to which all licensed traders and many offer agents belong), the Korea Chamber of Commerce and Industry, the three U.S. branch banks in Seoul, and the office of the Counselor for Commercial Affairs of the U.S. Embassy in Seoul.



Outside view of the Department of Commerce-sponsored U.S. Industrial Machinery Exhibition held in Seoul.

SELLING TO MANUFACTURERS

In selling to manufacturers, personal contact is important not only because of the value placed in the Orient on personal discussions, but also because such discussions serve to bring the end-user in touch with new processes and equipment. Korean businessmen are open to new ideas and technology, but their knowledge of what is available may be limited. Frequently Korean firms in the market for equipment to expand and modernize their plants are not aware of what U.S. suppliers can offer, and by default the contract may be given to a Japanese firm. Such occurrences reflect the under-representation of U.S. suppliers in Korea and the poor dissemination of catalogues and similar information on U.S. suppliers.

In general, Korean manufacturing firms have been established by entrepreneurs who, after initial success, have absorbed other companies and undertaken new manufacturing lines which frequently are unrelated to each other. Despite attempts to foster the development of open and public corporations, many corporations are still family-owned enterprises. A very high debt-equity ratio characterizes much of Korean industry; yet entrepreneurs are eager to enter into new operations, seeking advice and know-how from whatever source is available.

In this climate, the U.S. supplier or his representative must be sufficiently broad-gauged to discuss developments and technology in the customer's industry as a whole, fitting his sales approach into this discussion and underlining how the purchase of his product will

specifically benefit the customer's operations, particularly with respect to cost reduction and quality improvement. To sell, it is essential that the supplier be able to talk in terms of solving the problems faced by the industrialist. In order to make a sales presentation couched in these terms, plant visits are necessary, thus giving the supplier the opportunity to talk to plant engineers and foremen and thereby helping to pave the way for a favorable procurement decision. Typically, after consulting plant engineers, purchase decisions are made by the headquarters staff of the company whose offices are often in downtown Seoul rather than at the plant location.

GOVERNMENT PROCUREMENT

The Office of Supply, Republic of Korea (OSROK), is responsible for supervising the procurement of Government agencies and Government-owned enterprises in which the Government holds a majority share. Formal public invitations to bid are issued for all procurement, although occasionally OSROK is obligated to purchase under negotiated procurement as in the case of specialized equipment spare parts. Purchases are financed either by Government-owned foreign exchange (KFX), AID funds, or Japanese Property and Claims Settlement Funds (PAC). The invitation to bid specifies which source of financing is to be used to pay for the goods and services.

In the case of AID funds, procurement is limited to the United States; in the case of PAC funds, procurement is limited to Japan; and in the case of KFX funds, bidding is world-wide. In general, the deadline for receiving bids is 40 days, including Sundays and holidays, after the invitation to bid is issued. By law, the award is made to the lowest qualified bidder conforming to the terms and conditions of the bid invitations, taking into account the price, delivery time, quantity, specification, and terms most advantageous to the Government.

Procurement needs of the various Government agencies are formulated by the Ministries and agencies concerned and then screened by the Ministry of Commerce and Industry to see whether those requirements can be met from local sources. If not, the Ministry of Finance allocates the necessary foreign exchange funds. Specifications are normally drawn up by the Government agency requesting the goods and service, and they frequently call upon representatives of foreign suppliers for information and assistance. Thus if a U.S. supplier wishes to participate in Korean Government business, it is helpful to have a local representative. Having a

local representative also proves useful in keeping abreast of developments in procurement plans of Government agencies and of invitations to bid.

If the bid is made by the supplier's agent in Korea, he must be registered with the Ministry of Commerce and Industry as an agent of the supplier with the authority to make offers on his behalf. If the supplier or manufacturer submits a tender directly to OSROK, the bid must be certified by the Korean Mission or Consulate covering the region in which the supplier is located, or by the local chamber of commerce, as having been made by the manufacturer or supplier making the offer.

SELLING UNDER THE AID PROGRAM

Before goods can be procured with AID funds, U.S. suppliers must be notified of the intent to purchase. Such notification is carried in AID's Small Business Circulars (AID-Financed Export Opportunities) and frequently in the Commerce Department's Commerce Business Daily. Bids are then submitted to the foreign organizations making use of AID funds.

Current AID programs which offer trade opportunities for U.S. suppliers include Supporting Assistance, the Fourth Program Loan of \$10 million, various development loans, and relending loans to the Korean Reconstruction Bank (KRB, now the Korean Development Bank), the Korean Development Finance Corporation (KDFC), and the Medium Industry Bank (MIB). Supporting Assistance, in the past, has been used to finance needs of the Korean Government for equipment, and for raw materials such as pulp, rubber, and synthetic resins. The amount of Supporting Assistance has been declining year by year and the planned amount for FY 1970 is \$15 million. The Fourth Program Loan of \$10 million is designed to help small and medium-size Korean manufacturers secure U.S. equipment necessary to implement modernization and expansion plans. Administered by the Korea Exchange Bank, the proceeds of the loans are made available to end-users on a repayment schedule of 2 years for spare parts and 7 years for machinery and equipment at 5% interest. A down payment of 10% is required of the end-user and the remaining 90% must be covered by an unconditional local bank repayment guarantee in won, the charge for which is about 3% a year. Development loans for about 35 projects totaling \$320 million have been approved since 1959. Projects financed with development loans have included chemical plants,

waterworks, air navigation facilities, industrial research facilities, and electric power.

A \$15 million development loan has been extended to the KDB for relending to local industry at an interest rate of 10% with a maximum repayment period of 15 years. Similar loans of \$5 million and \$8 million have been made to the KDFC and the MIB. The maximum permissible terms of the subloans extended by these Korean financial institutions to local end-users is 15 years with a 3 year grace period, and an interest rate of 8% from the MIB and 10% from KDFC.

MARKETING AREAS

Most large Korean firms maintain headquarters in the nation's capital, and the foreign supplier can confine himself to doing business in the Seoul area. Following this approach, however, overlooks both the important role factory managers play in procurement decisions, and the possibility of doing business with smaller but growing enterprises which do not have offices in Seoul. Covering potential customers outside the Seoul area is essential if the U.S. supplier wishes to meet Japanese competition, for Japanese firms are assiduous in making visits to plants and firms in the provinces, especially in Pusan, a city connected to Japan by daily air and ferry service.

Seoul is the leading industrial center, with its industry accounting for about a third of the value added in manufacturing. Manufacturing activities in Pusan; the

province of Chungchong-Namdo, where the city of Taegu is located; the province of Kyonggi-do, incorporating the cities of Inchon and Suwon; and the province of Kyongsang-Namdo, with the cities of Masan and Ulsan; together contribute over 40% of the value added by manufacturing in Korea as a whole. By tradition or because of their geographic location many areas specialize in certain industries. Thus the Taegu area is first in Korea in the manufacture of textiles; Seoul is prominent in the wearing apparel field, and paper and printing; and Pusan is important in food processing (because of its location near Korea's fishing grounds), shipbuilding, plywood, and the manufacture of rubber products. Mining is heavily concentrated in Korea's eastern provinces. The Korean Government is attempting to spread the benefits of industrialization throughout the country by diffusing the location of industry. Ulsan, for example, is to become a center for the chemical and petrochemical industry.

Only a handful of trading firms in the general import business are located in Taegu and Pusan, and nearly all those in Pusan are only shipping liaison offices for Seoul-based trading firms. So severe is the situation that the Pusan Chamber of Commerce has established its own trading company to service the import requirements of manufacturing enterprises in the Pusan area, since many of these manufacturers must travel to Seoul to talk to representatives of foreign suppliers about their equipment and raw material needs and to place orders.



Pusan is Korea's second largest industrial area. Korea Shipbuilding and Engineering Corporation, Korea's largest shipbuilder, is located in this port city, at the southeastern tip of the country.

Import Regulations

While adhering to a general goal of trade liberalization, Korea's imports have recently been rising at higher than anticipated levels, thus necessitating the curtailment of certain liberalization measures. Nonetheless, favorable adjustments in Korea's import policy have been made, including the introduction of a simpler import licensing system and the adoption of a new tariff and customs law. These changes were introduced shortly after Korea's accession to the GATT in April 1967, a development which, by itself, gave evidence of Korea's outward-looking orientation.

IMPORT LICENSING

An import license, obtainable from the Korea Exchange Bank and valid for 90 days, is required for every transaction and before a letter of credit can be opened in a foreign supplier's favor. Under the negative list system introduced in the summer of 1967, all commodities may be freely imported (i.e., applications for import licenses are automatically approved) unless they are included on a negative list, which includes commodities that are either prohibited or restricted. The negative list is revised by the Ministry of Com-

merce and Industry every 6 months and published as the Semi-Annual Trade Plan. The bulk of Korean imports are licensed on an automatic approval basis. Processed foods, apparel, certain paper wares and some luxury goods make up the 76 items in the prohibited import category.

Applications for licenses for the import of the 508 four-digit Standard International Trade Classification (SITC) categories in the restricted category are judged on a case-by-case basis after screening by the Ministry of Commerce and Industry or other Government agencies. Included in the restricted category are such items as selected food items, domestic appliances, certain pumps, various chemical elements and compounds, varnishes, lacquers and some pigments, essential oils and resinoids, synthetic fibers, and certain types of office equipment.

For a number of restricted items (51 on the Trade Plan for the second half of 1969), quotas are established by the Ministry of Commerce and Industry. The Ministry of Commerce and Industry has allocated \$2.6 million for the importation of quota items which include plastics, paper products, rubber products, hand

tools, lighting fixtures, and lubricants. The importation of quota items is linked to the record of producers of domestic raw materials used for exports. Such producers may import quota items up to a value of 20% of their raw materials supply record during the period of the current half-yearly Trade Plan, as authenticated by the Korea Exchange Bank. This linked quota system is designed to encourage increased use of domestic raw material by granting the exclusive right of import of attractive quota items to such raw material producers. In addition to this linked quota system, permission to import textile fibers and yarn and electronic components is tied to the export record of Korea textile and electronic firms. Imports of these items are allowed up to a certain percentage of the value of export of given products, which varies from product to product.

All applications for import licenses must be accompanied by firm offers issued by foreign suppliers. Such pro forma invoices should be notarized and legalized by a Korean consulate. These are then checked to see whether the offer prices exceed the maximum import prices set by the Government.

IMPORT DEPOSIT REQUIREMENTS

Korea maintains advance import deposit requirements on most categories of private sector imports. In the case of imports financed with Korean Government-owned foreign exchange (KFX), the requirements are met by the deposit of exchange certificates at the importer's bank when the import license is issued. All foreign exchange earnings, except those from sales to U.S. forces stationed in Korea and to other non-residents, must be surrendered to the Korea Exchange Bank or other exchange banks, which in turn issue foreign exchange certificates valid for 45 days which may be bought or sold in a foreign exchange certificate market. For most KFX imports under sight letters of credit, exchange certificates equivalent to 100% of the import value must be deposited. A 150% deposit is required in the case of imports which are subject to customs duties in excess of 50% (about 202 items) and for 51 items categorized as luxury or nonessential goods.

In addition, higher import deposits are imposed on imports procured from "specified areas." These are defined as those countries less than 10 days transit time by sea from Korea, whose exports to Korea are more than double their imports from Korea, and with whom Korea's trade deficit is \$25 million or more over the course of a year. At the present time, only Japan fits

this definition. In the case of imports from "specified areas," an import deposit of 200% is required for items subject to customs duties in excess of 50% and for 51 items categorized as luxury or nonessential goods, and a 150% deposit rate is required for imports of goods subject to customs duties of between 30% and 49%.

The advance deposit rates for goods imported on a documents against acceptance basis (D/A) or a documents against payment (D/P) basis are 10% and 5% respectively, except when the imported item is from a country within 10 days shipping distance from Korea, in which case the rates are 30% and 50% respectively.

Imports by the private sector under U.S. aid programs are subject to prior won cash payments of part of the import settlement, and imports with Japanese Property and Claims Funds are subjected to prior payments of part of the import settlement in exchange certificates. A number of special rates also exist for various imports, including those raw materials and equipment used by foreign exchange earning industries and import substitution industries.

CUSTOMS

A new customs law and tariff were put into effect on January 1, 1968. Under the new tariff, industrial raw materials and equipment for basic industries which are not locally produced, are subject to ad valorem duty rates ranging from 5 to 20%; goods produced by industries receiving import protection are subject to duties ranging from 25 to 150%; and rates of duty on nonessential imports range between 60% and 150%. Duties are assessed on the basis of the normal landed price at the time of importation.

Import duties are not assessed on capital goods and raw materials imported in connection with foreign investment projects. Authorization to import on a duty-free basis those equipment items and supplies designated in the foreign investment application to the Economic Planning Board (EPB) usually accompanies the EPB's approval for a foreign investment project.

Raw materials used in the production of export goods are also exempt from payment of customs duties. In addition, certain machinery materials and parts used in designated basic industries such as electric power, iron and steel, the machinery industry, shipbuilding, fertilizer, man-made fibers, synthetic resins, mining, and highway construction may enter Korea either free of duty or at reduced rates. Application for such favorable customs treatment must be made to the Collector of Customs accompanied by a certification from appropriate Government Ministry or local Gov-

ernment official that the goods in the quantity stated will be used for a purpose that has been approved.

Foreigners may be licensed to own and operate bonded warehouses for storage of their own goods. Such merchandise may be stored for a period of up to 1 year, and goods so stored may be repacked, classified, divided, combined, or repaired subject to the approval of the Collector of Customs.

CONSULAR REQUIREMENTS AND CUSTOMS CLEARANCE

A certificate of origin plus a commercial invoice are required for all shipments, including air cargo and parcel post, valued in excess of \$100 f.o.b. These documents must be presented prior to shipment. Copies of the certificate of origin form are available from Korean Consulates overseas. Four completed and notarized copies of the certificate of origin must be submitted; the original and two copies are returned to the shipper after consular legalization. The certificate of origin should, if possible, give the c.i.f. price of the items being shipped. The method of payment must be shown; if payment is to be by letter of credit, the number of the L/C must be noted on the certificate and a copy attached. A commercial invoice is also required and is attached to the certificate of origin. The commercial invoice must show the date and place of shipment and port of arrival and should be certified by a local chamber of commerce as to the country of origin of the merchandise being shipped. If applicable, the number of the U.S. export license should be shown or a copy of that license may be attached.

Shipments consigned to the Korean Government, personal effects, and goods for diplomatic missions in Korea are exempt from consular requirements.

To facilitate customs clearance, the supplier should forward a copy of the certificate of origin and commercial invoice to the consignee immediately following shipment. Shipping marks, number, and the particulars of the bill of lading should conform to those on the invoice and certificate of origin.

OTHER CHARGES ON IMPORTS

With the exception of wheat, barley, raw logs, raw cotton, and a wide variety of machinery including textile machinery, agricultural machinery, food processing equipment, machine tools, electrical machinery and testing equipment on which the customs duty is 20% or less, imports are subject to a special customs charge. The Temporary Special Customs Law, enacted on May 3, 1964, established a special customs duty which is levied on commodities that realize "excess" profits.



The new Chosun Hotel in Seoul represents a joint venture between American Airlines and the Government-owned Korea Travel Service.

The dutiable excess profit is calculated as the difference between the domestic wholesale price and the landed price of the imported goods, to which is added the value of the customs duties, commodity tax, normal expenses, and normal profit (30% of the normal arrival price). Duty-free or duty exempted goods and goods imported by Government authorities are not subject to the Temporary Special Customs Law. A rate of 70%, if customs duty on the product is less than 40%, or 90%, if customs duty exceeds 40%, is levied upon the resulting positive difference between the domestic wholesale price and the total cost of the item to be imported.

In addition, an extraordinary 1% charge has been levied by the Korean Traders Association and approved by the Ministry of Commerce and Industry (MCI) on all authorized traders importing goods with KFX (Korean Government-owned foreign exchange) and PAC (Japanese Property and Claims Settlement Funds) funds. Commodities imported to earn foreign exchange and imports for Government use are excluded. This special charge is payable at the time of application for import licenses and is assessed on the c.i.f. import value. Proceeds from the special charge go into an export promotion fund administered by the Korean Traders Association with the advice of the MCI.

A commodity tax which ranges from 2% to 70% is levied on over 80 commodities including luxury consumption items, electric appliances, cameras, typewrit-

ers, and toiletries as well as cement, glass, aluminum, synthetic resins, paper, and chemical fibers. The tax is based on wholesale prices and is applicable to both imported and locally produced goods. Commodities used in the production of another taxable item are exempt from the tax. In the case of imports, the tax is based on the landed price plus import duty plus a 10% markup.

IMPORTERS REGISTRATION REQUIREMENTS

By law, only licensed traders are authorized importers. All imports must be imported by licensed traders with the exception of Government procurement, AID-financed goods imported by end-users, and imports entering Korea for processing and re-export or imported in connection with foreign investment projects. To maintain their status as licensed traders, they must realize exports each year of \$200,000. In order to hold down expansion in the number of traders, the Ministry of Commerce and Industry, in most cases, requires that a firm that was not previously registered as a trader must receive irrevocable letters of credit totaling at least \$300,000 before its application for a trading license can be approved.

Individuals or firms which act as offer or commission agents and tender firm offers in Korea on behalf of foreign suppliers must register with the Trade Policy Division of the Ministry of Commerce and Industry (MCI) to obtain the necessary certification required to function as an offer agent. Applications must be accompanied by a letter of agency issued by the foreign principal which has been confirmed by a Korean diplomatic mission in the supplier's country or notarized by a notary public. In lieu of this document, the MCI will accept an attestation by the diplomatic mission of the supplier's government in Korea that the local firm is an authorized agent for the U.S. principal. Also required before registration is possible are a list of items which the agent is authorized to represent, a certificate of registry (evidence of incorporation) for the offer agent, and a certificate of location of the principal office of the Korean firm. Before granting permission to aliens to act as offer agents in Korea, the Ministry of Commerce and Industry requires authorization from the Trade Committee.

PERMISSIBLE IMPORT TERMS

The normal or approved method of settlement for imports is by irrevocable and confirmed sight letters of credit. However, in the Foreign Exchange Supply and

Demand Plan prepared each year by the Ministry of Finance and approved by the Korean Cabinet, the scale of foreign exchange receipts and payments for the year are set out for visible trade and invisibles, and ceilings are placed on the amount of imports that will be allowed to enter Korea on terms other than sight letters of credit. For 1969 the ceiling on imports on D/A terms has been set at \$120 million, the same level as for 1968, while imports on a usance letter of credit basis for 1969 are limited to \$86 million as compared to the \$141 million ceiling for 1968.

The terms of D/A imports are limited to 90 days for nearby countries; from other countries drafts are also limited to 90 days but may be extended another 30 days upon application to the Korea Exchange Bank. Imports on a D/A basis are restricted to certain items, including machinery, logs, fibers, other raw materials, steel products, and chemicals, and are further restricted by linkage to export records. Thus, exporters whose trade records have been certified by the Korea Exchange Bank are eligible to import on a D/A basis. Such D/A imports range from 15% to 25% of any one exporter's total export record. But firms which supply domestic raw materials used for exports are allowed to import on a D/A basis up to 50% of their foreign exchange earnings records. End-users may also import certain raw materials and equipment on a 3-month basis, if they establish an import agency contract with an authorized trader who has a valid foreign exchange earnings record. Applications to import on a D/A basis must be made to the Ministry of Commerce and Industry, and after approval the required import deposit must be placed with the Korea Exchange Bank, from which a subsequent authorization for import on a D/A basis must be secured.

Usance drafts are limited to 180 days. Of the \$86 million ceiling under the Foreign Exchange Supply and Demand Program for 1969, allocations of \$50 million for crude oil, \$10 million for raw cotton, \$16 million for grain, and \$10 million for industrial facilities for export industries have been set.

Applications for approval to import on a D/P basis must be made to the Ministry of Commerce and Industry. Commodities subject to tariff rates of 50% or above, as well as luxury items, are not eligible for importation on a D/P basis. An import deposit of 5% for imports coming from countries whose shipping time to Korea is more than 10 days must be made when applying for D/P import approval to the Ministry of Commerce and Industry. Unlike D/A imports, where deposits are credited to the balance due on the full invoice value, deposits on D/P imports are only

reimbursable after 30 days have elapsed following release of shipping documents against payment.

As of 1969, transactions where the settlement period is over 1 year are treated as long-term transactions and, as such, require approval from the Economic Planning Board. In such cases the Government may also extend a Government Repayment Guarantee to the foreign lender, taking into account the financial stand-

ing of the borrower and the need to deposit the requisite collateral with the Government. The Korean Government has adopted a policy of maintaining a 15% ratio of service on external debts of 3 years or more to total export earnings. As a consequence, applications for approval of long-term loans are expected to be examined closely to see whether the projects accord with the Government's development priorities.

Commercial Facilities and Banking Aids

Korean firms and organizations provide a wide range of services to the foreign supplier, though in many cases these services are not comparable to the commercial facilities and marketing aids available in developed countries. In many cases these services are supplemented by the activities of foreign establishments operating in Korea.

BANKING

Government and semi-government banking institutions dominate Korea's banking system. By the end of 1968 the total amount of loans and discounts outstanding was 350 billion won, more than double the 1966 level.

Korea's banking system is supervised by the Bank of Korea (BOK), which was established in 1950 as the central bank of the country, serving as the bank of issue and as the depository for Government funds. The Bank's operations are administered by the Monetary Board which was also established in 1950 and is presided over by the Minister of Finance. The Board formulates the country's monetary, credit, and exchange

policies and has broad powers over the operations of the Bank and the banking system as a whole, with the exception of the Korean Development Bank, which is specifically exempted from the Board's control.

The Korea Exchange Bank (KEB) was established in 1966. The KEB has assumed most of the foreign exchange functions previously performed by the BOK. It has branch offices in Tokyo, Osaka, Hong Kong, and Saigon, and is also represented in Los Angeles, New York, London, and Dusseldorf.

The Korean Development Bank (KDB), which is under the jurisdiction of the Ministry of Finance, acts as intermediary for channelling Government funds and foreign loans to industry. The loans extended by the KDB, and its predecessor the KRB, are heavily concentrated in the manufacturing and electric power sectors and are mostly medium or long-term loans.

The National Agricultural Cooperative Federation (NACF) is an agricultural bank in addition to its marketing and other activities. It extends loans to farmers and also provides commercial banking facilities for farmers and urban customers.

The Medium Industry Bank (MIB), the Citizens National Bank (CNB), and the Korea Housing Bank (KHB) are Government-controlled banks designed to meet the needs of certain sectors of the economy. The purpose of the MIB is to finance small and medium-sized industries. Until recently, it had engaged chiefly in short-term operational financing, but now, assisted with foreign aid (including \$8 million from AID), is expanding its operations into the area of longer-term capital lending. The CNB specializes in extending loans and accepting mutual installment deposits and ordinary deposits. In principle, it is limited to granting loans only to those persons having a deposit account with the bank, to avoid competition with commercial banks. The KHB was established in July 1967 to make home building loans available to middle-income families, i.e., families whose income ranges between 15 and 30,000 won per month.

There are five domestic commercial banks currently in operation in Korea with a total of 185 branches throughout the country. These banks are the Hanil Bank, the Commercial Bank of Korea, the Choheung Bank, the First City Bank of Korea, and the Bank of Seoul. The Government is the largest single shareholder in these banks, which carry on mainly conventional commercial banking activities and are authorized to handle international business through correspondent banks.

In 1967, the Korean Government began granting permission to foreign banks to open branches in Korea. Since then, six foreign branch banks, including Chase Manhattan, First National City Bank of New York, and Bank of America, have opened branches in Seoul.

The Korea Development Finance Corporation (KDFC), incorporated in 1967, is a private corporation organized to make loans to private manufacturers and assist in the establishment of joint ventures. The KDFC's capital of \$22.5 million is based on foreign loans, including \$5 million from AID, and stock subscriptions from the International Finance Corporation, Korean and foreign banks, Korean private investors, and the Korean Government. A new \$20 million World Bank loan was made to the KDFC in 1969 to replenish its loan funds. This is Korea's first private institutional source for long-term industrial loans and equity financing.

An interest rate reform implemented June 1, 1969, reduced slightly the maximum rate on time deposits to 22.8% per year for 12-month deposits, 19.2% on 6-month deposits, and 14.4% on 3-month deposits. Interest rates for loans are still very high, ranging from 6%

for export loans and loans to finance imports of raw material for export industries, to 24% for other imports loans, 24% for general commercial loans, 28% for overdrafts, and 36.3% for overdue loans. The discount rate on commercial bills is 24.6% per annum.

KDB loans for electric power, shipbuilding, coal mining, the iron and steel industry, and other industries designated as important to Korea's economic development carry interest rates of 7% to 11%, while other industries are extended credit at interest rates of 20-23%.

Even at these high interest rates, the demand for funds is larger than the supply of bank credit, and the corporate sector's borrowings from the unorganized money market during 1967 is reported to have reached 23.2 billion won, 142% higher than the 9.6 billion won raised from this source in 1966. Rates in the unorganized money market are 4-6% per month, considerably higher than those offered by banks.

INSURANCE

There are currently 11 Korean-owned insurance companies writing non-life classes of insurance. In addition, American International Underwriters Corporation (AIU) and the American Foreign Insurance Association (AFIA), companies which manage the foreign operations of a number of American insurance companies, are also operating in Korea under licenses which limit them to sell dollar insurance to U.S. and other foreign nationals. Life insurance is written by six Korean insurance companies.

Automobile third-party liability insurance is compulsory and workmen's compensation is compulsory for those firms having 200 or more employees. The employer of 200 or more people must insure with the Korean Government; those companies with fewer employees can insure with private carriers or they can self-insure.

WAREHOUSING

Adequate bonded storage facilities are available in Korea, almost entirely limited to "Bonded Storage Places" which are under the direct supervision of the Collector of Customs. Storage of goods in such customs facilities is restricted to 2 months, but extensions are possible on request. The Customs Law also provides that privately owned and operated "Bonded Warehouses" may be established, with the approval of the Ministry of Commerce and Industry and the Collector of Customs. The maximum storage period in a Bonded Warehouse is 12 months. There is currently, however,



Seoul is the nation's commercial and Government center. This view shows a downtown section of the city.

only one licensed Bonded Warehouse in Korea, although a number of manufacturing enterprises operate as licensed, bonded facilities.

Goods stored in bonded facilities may be repacked, stored, divided and combined. With the permission of the Collector of Customs they may also be repaired as long as the nature and quality of the goods is not changed.

The above storage periods do not apply to the storage of live animals or plants, perishable merchandise, or other commodities which may cause damage to other merchandise or to the warehouse. The Collector of Customs bears no responsibility for goods while they are stored in customs bonded warehouses or compounds.

MARKET RESEARCH

Attention has been given recently to developing a capability for conducting market research in Korea. At present only a few Korean organizations are in a position to help foreign suppliers in their market research efforts. These are the Korean Productivity Center, KOTRA (although this organization is more oriented to export products and markets), S/K Associates, and the Federation of Korean Industry, which is planning to establish a market research organ. In addition a number of universities offer market research services.

ADVERTISING

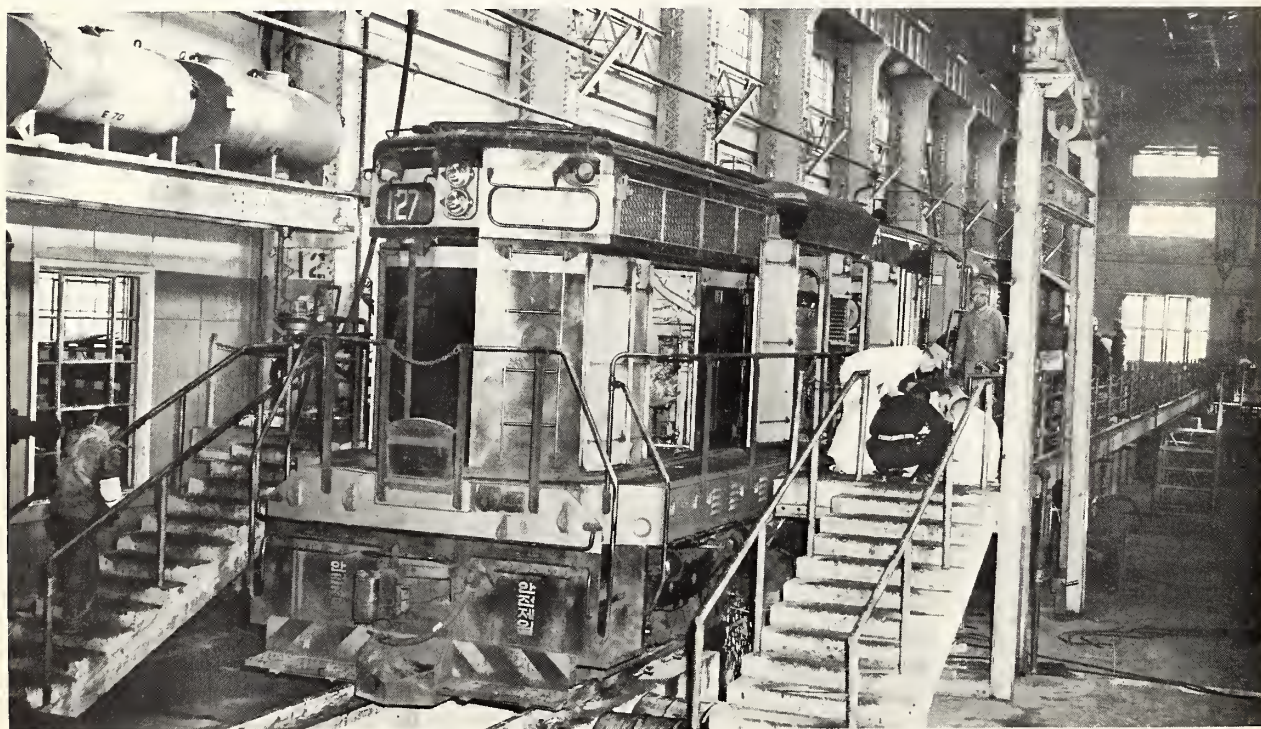
A highly literate population, wide dispersion of transistor radios, and growing interest in television make advertising a useful sales tool in the Korean market. Korea's 36 daily newspapers are estimated to have a combined circulation of 1.6 million, the largest national papers being the *Tonga Ilbo*, *Hanguk Ilbo*, *Choson Ilbo*, and the *Chungang Ilbo*. In addition, there are two English-language papers, the *Korea Herald* and the *Korea Times*, three weeklies, over 10 monthlies, and a large number of trade publications. Advertisements for pharmaceuticals and movies make up more than 60% of advertising volume in printed media.

All four commercial radio broadcasting networks carry commercial advertising, and both the Government-operated KTS-TV and privately-owned TBC-TV televise commercials.

There are currently three major advertising agencies in Korea: the Hapdong News Agency Advertisement Department; the Hankook Advertisement Agency; and an American firm, Impact.

FREIGHT TRANSPORTATION

The major method of inland transportation is the railroad, operated by the Government-owned Korean National Railroad (KNR). In 1967 the KNR carried



Railroads still form the backbone of Korea's transportation system, although expansion of the highway network may lessen dependence on rail traffic in the future.

27 million tons of freight. The completion of the Seoul-Pusan highway should augment the amount of freight carried by truck and relieve pressure on the railway.

Korean Air Lines (KAL), founded in 1962, is the flag carrier of the Republic of Korea. Domestic service links Seoul with Pusan, Taegu, Kwangju, Kangnung, Samchok, and Cheju Island. KAL also operates flights to Japan, between Seoul and Osaka and between Pusan and Fukuoka. KAL carried 1.3 million kgs. of freight in 1967. International carriers operating in Korea include Northwest Airlines, Japan Air Lines, Cathay Pacific Airways, Thai Airways International, and China Air Lines. In 1967 these lines carried 5.6 million kgs. to and from Korea.

Most imports enter Korea at Pusan, the country's major port, and at Inchon. Other ports include Kunsan, Mukho, Massan, and Mokpo. The Pusan and Kunsan harbors have berthing capacity for vessels up to 10,000 tons and Inchon up to 4,500 tons. Both Pusan and Inchon are serviced by scheduled American and other lines, including 13 Korean-flag freighters on the U.S. route. The American lines serving Korea are American Export Isbrandtsen Lines, American Mail Line, American President Lines, Isthmian Lines, Lykes Lines, Pacific Far East Line, States Marine Lines, States Steamship Company, United States Lines, and Waterman Line.

BUSINESS ORGANIZATIONS

In addition to the American Chamber of Commerce in Korea, a large number of businessmen's organizations have been formed to conduct research and provide general information in the industry or area it serves, to influence Government policy, and to set export goals. Nearly all cities have general chambers of commerce, and those in Taegu, Pusan and other large cities maintain international divisions willing to assist foreign visitors by providing general information and contacts. In addition, there is the Federation of Korean Industries and the Korea Chamber of Commerce, the latter being the national organization of which the local chambers are affiliates. Both organizations maintain active foreign relations and business promotion departments.

All registered traders and many offer agents belong to the Korean Traders Association, which is in a position to suggest to foreign suppliers seeking representation the names of interested agents.

Most industries have formed trade associations ranging from the prominent Spinners and Weavers Associa-

tion of Korea to the Construction Association of Korea, Electric Apparatus Cooperative, Plastic Productive Cooperative, and Wig Exporters Association. They often serve as useful points of contact for the foreign supplier seeking information on a particular market.

U.S. MARKETING AIDS

American exporters planning to do business in Korea and those already on the scene have convenient and inexpensive access to a wide range of information and services provided by private and Government agencies on a worldwide basis. These are available in the United States, and for U.S. businessmen who travel abroad, they are available from American Embassies and from U.S. firms operating in foreign countries.

Extensive economic, business and market information, sometimes including the market situation for specific products, is readily available in published form. Checklists and guides are published which contain references to a wide variety of up-to-date publications on international commerce, including reports on business and economic conditions, trade regulations, tax legislation, development plans, foreign trade, and the market potential for specific products in many countries, including Korea. These publications are obtainable at a nominal charge from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402; the field offices of the U.S. Department of Commerce; and in the case of certain reports relating specifically to Korea, from the Far Eastern Division, Bureau of International Commerce, U.S. Department of Commerce, Washington, D.C. 20230.

Listings of foreign firms, known as Trade Lists, selling for \$1 each, and background information about the operation, scope, and business reliability of foreign distributors, known as World Trade Director Reports (WTDRs), are available at a cost of \$2 from Commerce field offices or directly from the Commercial Intelligence Division, Bureau of International Commerce, U.S. Department of Commerce, Washington, D.C. 20230. WTD Reports on many firms are immediately available; information may be requested on others. This office may also be requested to furnish, at a cost of \$50, a survey identifying up to three potential distributors in a foreign market, with comment about their capabilities and the market for a particular product of interest. These surveys are prepared by the commercial staff in the American Embassy located in the country of interest.

Information about economic and business conditions in Korea may also be obtained in consultations with

specialists in the Far Eastern Division, while information about industries and products of these countries can be obtained from industry specialists in the Business and Defense Services Administration, U.S. Department of Commerce, Washington, D.C. 20230. Information on agriculture and the market for farm products in Korea is available from the Foreign Agricultural Service of the U.S. Department of Agriculture, Washington, D.C. 20250.

Headquarters offices of American banks, shipping, airline and other business firms established in business in Korea are also good sources of market and business information in these countries. Names and addresses of these firms are available in Trade Lists as indicated above.

U.S. businessmen planning to visit Korea may discuss their itineraries with the international trade specialist in their nearest Commerce field office, or communicate their plans directly to the Commercial Intelligence Division. The latter office will transmit trip information to the American Embassy in Korea to alert the commercial office about their visit plans. This service enables Embassies to plan to assist the visiting businessman upon arrival by identifying information sources and local business and government officials to be contacted. The Commercial Counselor in the Embassy in Seoul publishes a monthly commercial newsletter which circulates to most registered importers in Korea. The newsletter includes a section which contains a list of trade opportunities received from U.S. exporters.

American firms exporting to Korea should not overlook exploring and using the financing and export credit insurance facilities of the Export-Import Bank of the United States, located at 811 Vermont Avenue, N.W., Washington, D.C. 20005. The Export-Import Bank provides direct credits, guarantees loans made by commercial banks, and backs export credit insurance coverage on a short and medium-term basis provided by the Foreign Credit Insurance Association (FCIA), a consortium of private insurance companies. An export credit insurance policy protects the exporter who has extended export credit to a foreign importer against non-payment due to certain political and commercial risks. He may choose comprehensive protection against both these types of risks or political risk coverage only.

This insurance is available on a short term (up to 180 days) or medium-term (180 days to 5 years) basis. The former is generally sought in consumer goods export transactions, while the medium-term policy is generally sought in the case of equipment and durable goods export sales. Medium-term coverage

is available on an individual transaction basis, while short-term coverage is generally provided only on a "total turnover" basis. In the latter case, the exporter insures all his export shipments to all his foreign customers under his short-term policy. Exceptions to the turnover requirement can be negotiated. Both the medium and short-term policies can be assigned to a bank if the exporter desires to finance his sale.

As an alternative to the FCIA medium-term export credit insurance policy, an exporter may obtain non-recourse financing from a commercial bank, for which repayment is guaranteed by the Export-Import Bank. In this financing, the exporter seeks credit from his bank which then obtains a comprehensive or political risk only guarantee from the Export-Import Bank for credit the bank is willing to extend to the exporter.

A full explanation of the export credit insurance protection program of FCIA and the medium-term guarantee system of the Export-Import Bank is provided in the November 14, 1969, issue of *International Commerce*. Inquiries may also be addressed to FCIA headquarters at 250 Broadway, New York, New York 10007, or the Export-Import Bank in Washington, D.C.

The Export-Import Bank's principal long-term credit activity is making direct loans, generally called project loans, to public and private borrowers abroad for the purchase of U.S. goods and services. This type of direct financing by the Bank amounted to almost \$1.7 billion in fiscal year 1968. The essential criteria for granting these credits are a reasonable assurance of repayment, and that the loans supplement rather than compete with private lending facilities. The standard interest rate for direct loans is currently 6%. The Export-Import Bank will generally require the participation of private financial institutions in project loans and will not normally provide 100% of the financing. It also encourages foreign banks to participate. As an incentive to banks it will provide its guarantee of repayment.

Applications for these loans must be initiated by foreign private and public borrowers, although initial negotiations will first have been started with U.S. suppliers for the procurement of goods and services in which suitable credit terms are a vital consideration. There is no minimum size for such loans, although they usually are for larger amounts and longer terms than may be available through private banking channels. U.S. firms offering goods and services for sale abroad in which credit terms were an important competitive factor, have been able to successfully consummate large transactions over the years with credit assistance from the Export-Import Bank.

Loans are also made by the Bank to foreign development and commercial banks, which then relend the proceeds to local private firms to enable them to purchase U.S. goods and services. Foreign banks should negotiate for these credits directly with the Export-Import Bank.

A more complete discussion of the operations of the Export-Import Bank in financing U.S. exports appeared in the March 11, 1968 and November 24, 1969, issues of *International Commerce*. Also, inquiries may be addressed directly to the Bank in Washington, D.C.

NOTES FOR BUSINESS TRAVELERS

Entry Formalities

U.S. citizens desiring to travel to Korea need a passport with a valid visa obtainable from Korean consulates abroad, except that visas are not required for those planning to remain less than 72 hours provided they hold confirmed onward reservations (this period has been extended to 120 hours during Expo '70 in Osaka, Japan).

Business visas for U.S. citizens are valid for 4 years with multiple entry. Duration of each stay may vary from 60 days to one year depending on the circumstances. However, a residence permit must be obtained if the stay exceeds 60 days.

Tourist visas for U.S. citizens are valid for four years with multiple entry. Duration of each stay may not exceed 60 days.

Customs Regulations and Currency

Personal goods for the traveler's own use, and samples and advertising material, may be brought into Korea free of duty.

The Korean currency is the won issued as 1, 5, and 10 won coins and 10, 50, 100, and 500 won notes. The current exchange rate fluctuates around U.S. \$1=304 won. Foreigners may bring into Korea any amount of authorized foreign currency (U.S. dollars, Canadian dollars, Hong Kong dollars, Sterling, Deutsch Marks, Italian Lira, French Francs, Swiss Francs, and Swedish Krona) and in any form. Won or Japanese yen may not be brought into Korea. Visitors may take out any authorized foreign currency they originally brought in and declared to customs. Visitors may also convert won back to foreign currency up to the value of U.S. \$100 just prior to departure at any authorized foreign ex-

change bank, provided appropriate exchange conversion receipts proving prior conversion of foreign currency to won are in the traveler's possession.

Health Regulations and Currency

Visitors are required to have a valid International Certificate of Vaccination against smallpox. Inoculations against cholera, yellow fever, typhus, typhoid and tetanus are recommended.

As in most of the Far East, care should be exercised in drinking water and iced drinks and in eating raw fruits, vegetables, and other uncooked foods.

Climate and Clothing

Korea has a temperate climate, the summers being humid with temperatures reaching 95°F. The rainy season begins in mid-June and continues into early August. Winters are cold and fairly dry. The winter months (December through February) often bring a range in temperature between 0 and 60 degrees F., but usually with no prolonged periods of intense cold. The weather during the fall and spring in Korea is similar to that of the Northeastern United States.

Hotels

There are a number of first-class hotels in Seoul and more are being built. But due to the heavy influx of visitors to Seoul, it is usually advisable to make hotel reservations in advance. Single hotel room rates range from \$12 to \$20 per night in Seoul; rates are lower in areas outside the capital city.

Internal Transport

Korean Air Lines offers daily flight service from Seoul to Taegu and Pusan, and express trains connect

cities along the Seoul-Pusan rail line. Except during rush hours in the morning and evening, local taxis are readily available in most major cities with rates of under 25 cents for the first 2 kilometers.

Business Contacts

Most Korean firms have at least one officer versatile in English, thus making it possible to communicate with business contacts in English. International mail service is generally reliable with sea mail taking 5-7 weeks to the United States and airmail 4-5 days.

Business Days and Hours

Most business establishments have office hours from 8:30 or 9:30 a.m. to 5:00 or 6:00 p.m. on Mondays through Saturdays.

Public holidays include January 1-3 (New Years), March 1 (Independence Movement Day), March 10 (bank holiday), April 5 (Arbor Day), June 6 (Memorial Day), July 17 (Constitution Day), August 15 (Independence Day), September (exact date varies) (Lunar Moon Festival—Chusok), October 3 (National Foundation Day), October 9 (Korean Alphabet Day), October 24 (U.N. Day), December 25 (Christmas).

APPENDIX B

ECONOMIC DATA AND FOREIGN TRADE STATISTICS

**Table 1.—Expenditures on Gross National Product,
in 1965 Constant Prices, 1966-68**

(In billions of won ¹)

Expenditures	1966	1967	1968
Private consumption expenditures	716.99	783.92	873.58
General government consumption expenditures	84.76	93.42	105.64
Gross domestic fixed capital formation	190.63	232.09	325.63
Increase in inventories	16.75	9.63	18.49
Exports of goods and services	104.49	141.83	200.83
Less imports of goods and services	204.65	274.05	399.93
Statistical discrepancy	-8.23	-13.21	-19.16
Expenditure on gross domestic product	900.74	973.63	1,105.08
Net factor income from rest of world	13.08	21.53	22.24
Expenditure on Gross National Product	913.82	995.16	1,127.32
Expenditure on Gross National Product in current prices	1,032.04	1,242.35	1,575.65

¹ For applicable exchange rates, see table 16.
Source: Bank of Korea.

**Table 2.—Industrial Origin of Gross National Products,
1958, 1963, 1968 ¹**

(In percent)

	1958	1963	1968
Total Expenditure on GNP	100.0	100.0	100.0
Agriculture, forestry, fisheries	44.6	39.0	29.0
Mining and quarrying	1.0	1.7	1.5
Manufacturing	12.5	16.1	23.4
Construction	2.2	3.0	4.6
Electricity, water, sanitary services	0.8	1.0	1.7
Transportation, storage, communications	2.5	3.4	4.8
Wholesale and retail trade	14.2	16.3	17.9
Banking, insurance, real estate	1.5	1.6	1.4
Ownership of dwellings	4.4	3.8	2.7
Public administration and defense	6.7	5.5	4.2
Services	8.1	7.5	6.7
Rest of the world	1.4	1.0	2.1

¹ Measured in terms of Gross National Product at 1965 constant prices.
Source: Economic Planning Board.

Table 3.—Characteristics of Korean Population, 1960 and 1966

	1960 (1,000)	1966 (1,000)	Percent Increase 1960-66	Percent of Total Popu- lation 1966
Population, total	24,989	29,208	16.9	100
Households	4,378	5,118	16.9	—
Farm households	2,339	2,499	6.8	—
Non-farm households	2,037	2,620	28.6	—
Sex				
Male	12,544	14,701	17.2	50.3
Female	12,445	14,507	16.6	49.7
Age structure ¹				
Under 15	10,900	12,102	11.0	42.3
15-59	12,700	14,945	17.7	52.2
60 and over	1,400	1,600	14.3	5.5
Major cities				
Seoul	2,445	3,805	55.6	13.0
Pusan	1,163	1,430	23.0	4.9
Taegu	678	848	25.1	2.9
Inchon	402	529	31.6	1.8
Total urban	6,997	9,810	40.2	33.6
Total rural	17,993	19,397	7.8	66.4

¹ Breakdowns of population by age group for 1966 are based on October 1965 data.

Source: Korean Economic Planning Board.

Table 4.—Persons Employed by Industry, 1963 and 1967

(Thousands of persons)

	1963	1967	Percent Increase 1963-67	Percent of Em- ployed 1967
Labor Force	8,652	9,504	9.9	—
Male	5,634	6,173	9.6	—
Female	3,018	3,331	10.4	—
Employed	7,947	8,914	12.2	100.0
Male	5,146	5,763	11.2	64.7
Female	2,801	3,151	12.5	35.3
Agriculture, forestry and fisheries	5,022	4,924	-1.2	55.2
Agriculture and forestry	4,822	4,706	-2.5	52.8
Fisheries	200	218	9.0	2.5
Mining and manufacturing	689	1,138	65.2	12.8
Mining and quarrying	59	96	62.7	1.1
Manufacturing	630	1,042	65.4	11.7
Social overhead and other services	2,236	2,852	27.6	32.0
Construction	199	264	32.7	3.0
Electricity, gas, water, sani- tation	25	28	12.0	0.3
Commerce	784	1,100	40.3	12.3
Transport, storage and communi- cation	117	192	64.1	2.2
Public administration	270	298	10.4	3.3
Other services	841	970	15.3	10.9

Source: Korean Economic Planning Board.

Table 5.—Selected Indicators of Living Conditions, 1963 and 1967

(In thousands)

	1963	1967	Percent Increase 1963-67
Education			
Middle school students	665.8	911.9	37.0
High school students	364.3	441.9	21.3
University students	124.2	161.6	30.1
Communications			
Mail handled (millions)	211.9	440.4	107.8
Telephone subscribers	157.3	339.3	115.7
Media and entertainment			
Magazines (each)	276	626	126.8
Newspapers (each)	34	43	26.5
Radios	1,661.4	2,939.0	76.9
Movie theaters (each)	540	722	33.7

Source: Korean Economic Planning Board.

Table 6.—Average Monthly Consumption Expenditure per Urban Family, 1963 and 1967

(In won)

	1963	1967	Percent Increase 1963-67	Percent of Con- sumption Expend- iture in 1967
Consumption expenditure	7,147	20,620	188.5	100.0
Food	3,922	9,180	134.1	(44.5)
Cereals	2,453	4,110	67.6	19.9
Meat and fish	411	1,510	267.4	7.3
Milk and eggs	60	200	233.3	1.0
Vegetables and fruits	491	1,820	270.7	8.8
Condiments	296	890	200.7	4.3
Processed foods	58	210	262.1	1.0
Confections and soft drinks	49	170	246.9	0.8
Alcoholic drinks	37	100	170.3	0.5
Eating out	67	170	153.7	0.8
Housing	1,057	3,770	256.7	(18.3)
Rents paid	100	300	200.0	1.5
Est. rents on own home	780	2,800	259.0	13.6
House repairing	69	220	218.8	1.1
Water charges	40	110	175.0	0.5
Furniture and utensils	68	340	400.0	1.7
Fuel and light	433	1,200	177.1	(5.8)
Electricity charge	80	290	262.5	1.4
Other	353	910	157.8	4.4
Clothing	416	2,110	407.2	(10.2)
Clothes	279	1,540	452.0	7.5
Footwear	72	280	288.9	1.4
Accessories	57	240	321.1	1.2
Miscellaneous	1,319	4,360	230.6	21.1

Source: Korean Economic Planning Board.

Table 7.—Index of Industrial Production, 1960, 1963, and 1968

(1965=100)

Industrial Sector	1960	1963	1968
Total industrial production	56.2	78.6	187.1
Total manufacturing	56.3	77.6	196.8
Food	93.7	107.8	232.2
Beverages	79.2	71.3	169.5
Tobacco	56.6	62.1	125.4
Textiles	63.5	69.9	194.6
Footwear and apparel	N.A.	N.A.	130.6
Wood and cork	77.3	102.5	237.5
Furniture and fixtures	N.A.	N.A.	193.2
Paper and paper products	52.5	92.9	160.0
Printing and publishing	64.7	68.7	179.4
Leather and leather products	75.3	85.8	174.2
Rubber products	71.3	83.5	118.8
Chemicals and chemical products	48.5	85.8	254.5
Petroleum and coal products	26.7	47.5	237.8
Clay, glass, and stone products	45.1	63.2	193.8
Basic metals	69.4	93.3	158.8
Metal products	64.3	114.7	167.0
Machinery	66.1	97.3	162.7
Electrical machinery	28.7	93.2	215.8
Transport equipment	22.6	62.3	330.0
Miscellaneous manufactures	63.0	118.6	184.5
Total mining	56.9	87.4	112.1
Coal	52.2	86.6	99.9
Metal	80.1	92.7	122.9
Stone, clay, and sand	N.A.	N.A.	340.7
Non-metal	55.3	83.6	134.4
Electricity	52.2	67.9	184.8

Source: Bank of Korea.

N.A.—Not available.

Table 8.—Production of Principal Agricultural Crops, Selected Years

(In thousands of metric tons)

Crop	1960	1963	1965	1967
Rice	3,047	3,758	3,501	3,603
Barley	1,668	1,181	2,136	2,253
White potatoes	84	78	116	113
Sweet potatoes	242	435	929	518
Millet	55	74	61	42
Corn	14	20	40	60
Soybeans	130	156	175	202
Apples	104	110	167	190
Pears	27	24	40	41
Grapes	4	6	19	25
Peaches	14	19	54	71
Radishes	392	418	587	580
Chinese cabbage	333	368	480	609
Tomatoes	11	13	25	49
Red peppers	21	34	46	67

Source: Ministry of Agriculture and Forestry.

Table 9.—Mineral Production, Selected Years

Mineral	1960	1963	1965	1967	1968
Anthracite (1,000 MT)	5,350	8,858	10,248	12,436	10,242
Iron ore (1,000 MT)	392	501	735	698	830
Lime stone (1,000 MT)	637	1,362	3,090	3,916	5,653
Salt (1,000 MT)	399	230	669	612	561
Manganese concentrate (MT)	1,383	4,155	6,691	7,241	4,221
Copper ore (MT)	5,892	12,297	22,184	15,561	19,044
Lead ore (MT)	1,838	3,834	8,849	17,607	31,390
Zinc concentrate (MT)	84	2,258	14,232	27,299	38,679
Silica sand (MT)	5,877	16,393	34,008	43,598	49,050
Tungsten concentrate (ST)	4,915	5,222	4,230	4,016	4,153
Gold, refined (Kg)	2,047	2,802	1,954	1,970	1,941
Silver, refined (Kg)	10,253	13,810	13,499	18,286	19,815

Source: Bank of Korea.

Table 10.—Production of Principal Manufactures

	1960	1963	1965	1967	1968
Canned food (MT)	5,811	3,708	8,158	4,956	3,655
Wheat flour (million bags)	10.5	24.8	15.8	27.7	31.0
Refined sugar (1,000 MT)	64	40	45	109	141
Ethyl alcohol (1,000 kl)	29.9	19.4	25.5	45.7	45.9
Beer (1,000 kl)	17.6	12.9	42.2	53.8	47.3
Sake (1,000 kl)	19.8	10.9	17.7	22.5	14.4
Soft drinks (1,000 kl)	6.8	14.8	19.4	31.5	49.4
Distilled spirits (1,000 kl)	121	87	89	154	146
Cigarettes (1,000 MT)	14.4	19.1	26.5	30.7	33.8
Cut tobacco (1,000 MT)	6.8	9.8	8.8	5.6	5.4
Cotton yarn (1,000 MT)	49.1	62.6	66.1	78.5	84.4
Raw silk (1,000 Kg)	297	557	744	1,329	687
Worsted yarn (1,000 Kg)	2,135	1,892	1,211	2,291	3,107
Woolen yarn (1,000 Kg)	291	1,119	2,995	4,486	3,642
Twisted yarn (1,000 Kg)	313	1,769	1,295	1,530	2,350
Staple fiber yarn (1,000 Kg)	596	2,811	2,437	2,680	2,798
Cotton fabrics (1,000,000 m ²)	126.1	147.7	190.3	186.4	191.0
Staple fiber fabrics (1,000,000 m ²)	10.1	5.9	5.3	5.8	6.0
Silk fabrics (1,000,000 m ²)	3.1	1.3	4.0	3.8	4.8
Rayon fabrics (1,000,000 m ²)	52.2	36.7	51.9	64.2	66.5
Nylon fabrics (1,000,000 m ²)	3.9	5.0	18.3	41.9	66.3
Woolen fabrics (1,000,000 m ²)	3.6	7.0	12.6	14.4	14.7
Newsprint (1,000 MT)	26.9	41.8	45.4	57.6	62.2
Woodfree paper (1,000 MT)	8.9	16.6	19.0	29.0	32.3
Kraft paper (1,000 MT)	2.4	15.9	22.0	28.3	37.9
Board paper (1,000 MT)	3.3	5.1	10.8	13.8	23.3
Manila board paper (1,000 MT)	0.4	3.9	9.1	17.6	23.9
Printing paper (MT)	N.A.	6,947	9,353	7,522	8,200
Truck tires (1,000)	119	160	240	289	307
Passenger car tires (1,000)	56	78	115	197	321
Rubber shoes (million pair)	40.8	55.8	62.6	35.5	36.5
Sneakers (million pair)	15.3	13.1	27.6	26.5	32.1
Plastic products (1,000 MT)	6.1	11.3	10.6	27.3	45.1
Carbide (1,000 MT)	3.5	6.0	10.3	31.1	49.6
Oxygen (1,000 m ³)	1,143	2,599	2,876	3,756	4,245
Industrial explosives (MT)	2,110	3,860	4,634	6,058	7,228
Zinc oxide (MT)	2,346	2,568	2,395	1,021	1,588
Printing ink (MT)	664	430	446	837	1,031
Hydrochloric acid (1,000 MT)	7.4	11.2	17.5	34.9	46.7
Paint (1,000 MT)	5.6	4.6	7.3	12.9	18.4
Urea fertilizer (1,000 MT)	13	98	163	315	612
Fire bricks (1,000 MT)	22	29	38	51	40
Glass products (1,000 MT)	23	20	24	52	60
Cement (1,000 MT)	431	778	1,614	2,441	3,572
Abrasive stone (1,000 MT)	483	648	662	895	927
Flat glass (1,000 cases)	193	537	517	558	702
Pottery and porcelain (million pieces)	35	35	37	33	36
Pig iron (1,000 MT)	14	5	21	22	15
Steel ingots (1,000 MT)	50	160	192	320	364
Steel bars (1,000 MT)	45	80	13	180	310
Electrolytic copper (MT)	1,010	2,379	2,279	3,246	4,078
Galvanized iron sheet (MT)	5,149	45,696	37,173	23,326	16,513
Aluminum products (MT)	4,507	2,615	6,222	4,991	8,551
Radios (1,000)	40	158	324	440	1,188
Cars (sedans)	—	1,430	166	5,033	10,979
Buses	—	233	1,251	941	1,632
Plywood (million sq. ft.)	187	335	729	1,490	2,384

Source: Bank of Korea.

N.A.—Not available.

Table 11.—Direction of Foreign Trade, 1964, 1967 and 1968

(Millions of U.S. dollars)

Area	Exports			Imports		
	1964	1967	1968	1964	1967	1968
Asia	66.0	129.1	151.9	146.2	573.6	824.5
Japan	38.2	84.7	99.7	110.1	443.0	624.1
Taiwan	2.0	3.1	5.8	5.2	27.2	16.0
Hong Kong	11.6	15.2	15.7	5.9	12.0	15.7
Philippines	1.2	0.6	0.9	9.0	21.9	34.3
South Viet-Nam	6.3	7.3	5.6	—	0.5	1.7
Iran	0.5	1.2	1.5	—	12.0	28.4
Singapore	2.1	4.1	10.7	0.4	5.0	4.1
Europe	15.7	33.2	36.3	39.2	84.3	153.2
West Germany	1.1	5.2	9.6	23.9	31.0	73.6
United Kingdom	6.5	7.9	7.0	3.2	5.3	15.6
France	0.8	2.1	2.6	—	16.7	13.7
Italy	0.8	1.1	1.6	4.5	6.4	21.6
Netherlands	2.7	3.7	6.2	4.0	6.0	7.6
Sweden	1.6	8.0	6.1	0.9	2.2	8.8
North America	36.0	146.0	251.0	205.6	314.6	468.7
United States	35.6	137.4	235.5	202.1	305.2	452.5
Canada	0.4	7.9	14.2	2.5	8.4	12.7
South America	0.3	0.1	0.1	0.6	3.1	4.2
Africa	0.3	8.8	12.3	1.3	8.7	1.4
Oceania	0.7	3.0	3.7	9.1	11.1	14.4
Australia	0.6	2.3	1.6	8.0	8.9	11.1
Not classifiable	—	—	—	2.3	0.8	1.8
TOTAL	119.1	320.2	455.4	404.4	996.3	1,468.2

Source: Customs Bureau, Korean Ministry of Finance.

Table 12.—Korean Imports (c.i.f.) by Principal Commodities, 1964, 1967, and 1968

(Millions of U.S. dollars)

Commodity	1964	1967	1968
Food and live animals	68.2	94.1	167.5
Powdered milk	1.6	0.4	2.4
Wheat	36.8	46.3	62.8
Rice	—	24.9	43.3
Barley	14.5	0.3	11.8
Corn, unmilled	0.5	0.9	0.8
Flour	8.4	3.6	7.1
Raw sugar	3.5	9.0	9.2
Feeding stuff for animals	0.4	3.7	11.4
Beverages and tobacco	0.1	0.8	1.4
Crude materials, inedible	97.1	208.5	270.4
Hides and skins	0.2	1.3	2.1
Soybeans	1.1	3.2	0.5
Crude rubber (incl. synthetic)	5.9	10.2	11.9
Wood and lumber	18.5	58.4	91.5
Pulp	8.3	15.6	24.6
Wool	4.1	11.1	14.3
Raw cotton	37.3	49.3	49.1
Synthetic and regenerated fibers	6.5	16.8	21.0
Crude fertilizers	2.3	5.1	6.5
Sulphur	0.3	2.1	3.5
Asbestos	0.4	3.3	3.6
Iron and steel scrap	2.5	18.9	22.9
Mineral fuels and lubricants	28.5	61.6	75.5
Coal and coke	2.5	2.1	2.7
Petroleum and products	25.9	59.4	72.9
Animal and vegetable oils and fats	3.9	6.9	8.3
Beef tallow	3.5	5.3	5.3
Chemicals	84.3	113.0	130.3
Chemical elements and compounds	13.7	33.4	47.3
Mineral tar and crude chemicals from coal and petroleum	—	1.5	2.3
Dyeing, tanning, and coloring materials	3.7	7.1	7.8
Medicinal and pharmaceutical products	3.8	7.5	11.8
Essential oils, toilet articles, and cleansers	1.1	2.3	3.6
Manufactured fertilizers	55.9	43.9	30.6
Plastic materials, regenerated cellulose, artificial resins	3.3	10.9	18.1
Other chemical elements and products	2.8	6.2	8.7
Manufactures classified by material	46.1	183.7	242.2
Paper and paper products	1.9	4.6	8.1
Raw filament yarn	8.0	27.8	36.5
Synthetic fiber yarn	0.5	7.0	23.7
Regenerated fiber yarn	1.6	8.0	2.3
Woven fabrics	7.0	20.0	29.9
Refractory bricks and other refractory materials	0.5	1.2	2.2
Iron and steel	14.8	56.1	69.3
Copper	0.3	2.5	2.6
Aluminum	1.7	7.0	9.1
Zinc	1.2	1.5	2.1
Manufactures of metal	3.0	26.7	34.3
Machinery and transport equipment	69.5	310.2	583.2
Nonelectric machinery	38.2	141.2	283.0
Electric machinery	19.7	47.6	95.9
Railway vehicles and parts	2.0	32.7	28.1
Road motor vehicles and parts	3.0	21.4	61.9
Aircraft and parts	2.3	9.5	1.4
Ships and boats	2.1	57.2	61.7
Miscellaneous manufactured articles	5.3	17.2	38.9
Sanitary, plumbing, heating and lighting fixtures and fittings	0.3	1.4	1.2
Professional, scientific, and controlling instruments	2.7	9.5	14.7
TOTAL	404.4	996.2	1,468.2

Source: Customs Bureau, Korean Ministry of Finance.

Table 13.—Korean Exports (f.o.b.) by Principal Commodities, 1964, 1967, and 1968

(Millions of U.S. dollars)

Commodity	1964	1967	1968
Food and live animals	26.4	37.9	44.5
Fish and fish preparations	15.2	26.9	25.8
Dried laver	5.5	6.5	13.7
Beverages and tobacco	0.2	7.0	8.6
Tobacco and tobacco manufactures	0.2	6.7	7.8
Crude materials, inedible	31.4	58.0	61.5
Raw silk	5.8	14.9	18.0
Crude fertilizers and minerals	4.4	5.8	6.3
Iron ore	6.0	6.1	7.3
Tungsten ore	4.7	11.0	11.1
Other crude animal and vegetable materials	6.4	10.9	9.3
Mineral fuels and lubricants	2.5	1.8	2.3
Anthracite	2.4	1.8	2.2
Animal and vegetable oils and fats	0.1	0.1	0.1
Chemicals	0.6	2.4	3.1
Manufactures classified by material	42.3	101.4	143.6
Rubber tires and tubes	0.8	1.6	1.7
Veneer sheets	11.4	36.4	65.6
Textiles	19.6	49.0	61.2
Iron and steel	4.5	1.9	1.2
Copper	1.6	0.4	—
Manufactures of metal	0.9	7.0	9.7
Machinery and Transport Equipment	2.2	14.2	24.5
Nonelectric machinery	0.5	4.0	4.2
Electric machinery	1.0	7.4	18.9
Transport equipment	0.7	2.8	1.4
Miscellaneous Manufactured Articles	13.2	97.2	167.0
Clothing	6.6	59.2	112.2
Footwear	0.9	8.1	11.0
Wigs	0.2	22.7	34.1
Total	119.1	320.2	455.4

Source: Customs Bureau, Korean Ministry of Finance.

Table 14.—U.S. Exports to Korea by Principal Groups and Commodities, 1967-68

(Millions of U.S. dollars)

Group and Commodity	1967	1968
Food and live animals	91.0	136.4
Wheat	57.0	59.9
Rice	14.7	42.7
Barley	0.2	10.2
Wheat flour	3.1	9.8
Beverages and Tobacco	0.2	0.2
Crude Materials, inedible, except fuel	87.8	95.4
Raw cotton	46.4	40.9
Pulp	12.5	14.6
Wood and lumber	4.5	8.9
Iron and steel scrap	14.6	14.7
Mineral Fuels	1.0	1.2
Oils and fats, animal and vegetable	4.7	5.2
Chemicals	24.4	36.3
Synthetic resins and plastic materials	5.4	12.8
Chemical elements and compounds	5.4	6.5
Manufactured fertilizers and materials	6.5	8.7
Medicines and pharmaceuticals	3.8	3.6
Manufactured Goods by Chief Material	23.0	24.3
Non-ferrous metals	6.6	7.5
Paper and paperboard	2.7	3.6
Manufactures of metal (nec)	4.1	4.8

(Millions of U.S. dollars)

Commodity	1967	1968
Machinery and Transport Equipment	79.7	95.3
Agricultural machinery	1.1	12.2
Power generating machinery	8.8	11.8
Construction and mining equipment	1.4	6.6
Other non-electric machinery	18.2	25.6
Electrical machinery	21.9	26.9
Road motor vehicles and parts	2.4	8.1
Aircraft and parts	8.8	3.5
Miscellaneous Manufactures	9.4	12.0
Scientific, optical and other instruments	3.9	4.4
Total, Including Re-exports	326.4	415.2
Special category	87.7	95.3
Grand Total	414.1	510.5

Source: Bureau of the Census, U.S. Department of Commerce.

Table 15.—U.S. Imports from Korea by Principal Groups and Commodities, 1967-68

(Millions of U.S. dollars)

Group and Commodity	1967	1968
Food and Live Animals	1.4	1.0
Beverages and Tobacco	0.2	1.4
Crude materials, inedible, except fuel	9.9	8.3
Raw silk	7.7	6.8
Chemicals	0.1	0.1
Manufactured Goods by Chief Material	42.9	68.8
Plywood and wood veneers	30.1	53.4
Textiles	9.9	11.4
Table flatware and cutlery	0.6	1.0
Machinery and Transport Equipment	3.4	11.1
Radio receivers and parts	1.3	1.8
Electronic tubes, transistors, etc.	0.9	6.8
Miscellaneous Manufactures	58.3	106.3
Clothing	28.3	61.7
Footwear	7.0	10.0
Wigs	20.7	30.9
Total	117.1	198.6

Source: Bureau of the Census, U.S. Department of Commerce.

Table 16.—Official Exchange Rates, 1962-69

End of Year	Won per U.S. dollar
1962	130
1963	130
1964	255
1965	271
1966	270
1967	274
1968	281
1969 (Nov.)	304

Note: Under the present exchange rate system, the Bank of Korea posts a daily basic concentration rate around which foreign exchange transactions fluctuate. The daily basic concentration rate is set by the Bank in accordance with the market rate predominating during the previous day's transactions.

Source: International Monetary Fund.

PRINCIPAL GOVERNMENT ENTERPRISES

Agriculture and Fishery Development Corporation
Chungju Fertilizer Corporation
Honam Fertilizer Corporation
Korea Coal Corporation
Korea Dredging Corporation
Korea Electric Company
Korea Government Printing Agency
Korea Housing Corporation
Korea Marine Industry Development Corporation

Korea Mining and Smelting Corporation
Korea Mining Development Corporation
Korea National Textbook Corporation
Korea Oil Corporation
Korea Salt Corporation
Korea Tourist Service Corporation
Korea Tungsten Mining Corporation
Korea Water Resources Development Corporation

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New York, New York 10021

Korean Consulate General
3800 Clay Street
San Francisco, California 94118

**Korea Trade Promotion Corporation
(KOTRA) Trade Centers**

Korea Trade Center
333 North Michigan Avenue
Chicago, Illinois 60601

Korea Trade Center
Occidental Center
1149 South Hill Street
Los Angeles, California 90015

Korea Trade Center
1610 International Trade Mart
New Orleans, Louisiana 70130

Korea Trade Promotion Center
Suite 4601, Empire State Building
350 Fifth Avenue
New York, New York 10001

Korea Trade Center
Room 250-C, World Trade Center
Ferry Building
San Francisco, California 94111

Other

Korea-America Commerce and
Industry Association, Inc.
160 Broadway
New York, New York 10038

Korea Exchange Bank (Los Angeles Office)
1 Wilshire Boulevard
Los Angeles, California 90017

Korea Exchange Bank (New York Office)
140 Broadway
New York, New York 10005

Korean Traders Association
(New York Branch)
11 East 44th Street
New York, New York 10017

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